FINDINGS OF FACT

and

CONCLUSIONS

Mesenbrink Mixed-Use Development,

CITY OF MANKATO

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April 2023

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APPENDICES

I. STATEMENT OF ISSUE

Mesenbrink Construction proposes the construction of a new mixed-use development consisting of retail space, apartment units and single family residential, located on approximately 105 acres in Blue Earth County (to be annexed into the City of Mankato). The purpose of the Proposed Project is to provide additional housing and commercial property in the City of Mankato. The Proposed Project would also provide an extension of sanitary sewer and watermain to services to the future development of the property to the east (in the proposed extension of Hoffman Road to the east).

Preparation of an Environmental Assessment Worksheet (EAW) is considered mandatory under Minnesota Rules 4410.4300. Mesenbrink Construction, Inc., is the project proposer, and the City of Mankato is the Responsible Governmental Unit (RGU) for this project, as per Minnesota Rules 4410.4300, Subpart 19.D.

The City of Mankato's decision in this matter shall be either a negative or positive declaration on the need for an Environmental Impact Statement (EIS). The City must order the preparation of an EIS for the project if it determines that the project has the potential for significant environmental effects.

Based upon information in the record, which is comprised of the EAW for the Proposed Project, the issues raised during the public comment period, the responses to the comments, and other supporting documents, the City makes the following Findings of Fact and Conclusions:

II. ADMINISTRATIVE BACKGROUND

Mesenbrink Construction, Inc., is the project proposer, and the City of Mankato is the Responsible Governmental Unit (RGU) for this project. An EAW was prepared for this project as part of the Minnesota Environmental Policy Act (MEPA) to fulfill requirements M.S. 116D and Minnesota Rules Chapter 4410. The EAW is used to provide sufficient environmental documentation for the RGU to base a determination of need for a state EIS or that a Negative Declaration is appropriate.

The EAW was filed with the Minnesota Environmental Quality Board (EQB) and circulated for review to the required EQB Distribution List. A "notice of availability" was published in the EQB Monitor on February 7, 2023. **Appendix A** contains a copy of the EQB Monitor listing for the project and members on the EAW Distribution List. A press release was published in The Mankato Free Press on February 6, 2023 (see **Appendix A**).

The EAW was posted on the City of Mankato's website at: https://www.mankatomn.gov/home/showpublisheddocument/12958/638107513590970000. The EAW was also made available for public review at the Blue Earth County Library. Comments were formally received through March 9, 2023.

A total of 13 written comment letters were received during the EAW comment period. Four written comment letters on the Mesenbrink Mixed-Use Development Project EAW were received from public agencies: Blue Earth County, MnDNR, MnDOT District 7, and the Office of the State

Archaeologist (OSA). Three written comment letters were received from the general public, and six written comments were received during the project open house, which occurred on March 1, 2023. All comments received during the EAW comment period were considered in determining the potential for significant environmental impacts. Comments received during the comment period are provided in **Appendix B**.

III. FINDINGS OF FACT

A. Project Description

Mesenbrink Construction proposes the construction of a mixed-use development located on approximately 105 acres in Blue Earth County (to be annexed into the City of Mankato). The existing property is primarily of agricultural use. The northeast corner of the property contains part of an unnamed lake (07007100 as per the DNR). Mesenbrink Construction would develop the property from west to east starting with retail/residential units on the west side of the property. Then transition into apartment units in the middle of the development. Finishing with single family homes on the east side of the property. The construction of the development would utilize traditional construction methods such as earth-moving equipment. Utilities within the Study Area would be installed as per the City of Mankato guidelines. The construction of the development is planned to begin 2024 with finishing of the project to be determined. Construction is anticipated to commence in 2024, with full build-out completed over the course of five to ten years, depending on economic conditions.

The proposed mixed-use development follows the City of Mankato's Land Use Plan for the development of retail/residential, multiple-family residential, and single-family residential. According to the Mankato Area Housing Study Update, dated August 2022, the City of Mankato will have an estimated growth of 335 to 350 households per year. Vacancy rates for multiple-family units within the City of Mankato are currently low, necessitating the construction of additional multiple-family units.

B. Corrections to the EAW or Changes in the Project since the EAW was Published

An updated EAW document is included in **Appendix C**. All corrections to the EAW and changes in the project are also outlined in **Table 1, "Mesenbrink Mixed-Use Development EAW – Comments Received and Responses."**

C. Agency and Public Comments on the EAW and Responses

Four written comment letters on the Mesenbrink Mixed-Use Development Project EAW were received from public agencies: Blue Earth County, MnDNR, MnDOT District 7, and the Office of the State Archaeologist. Three written comment letters were received from the general public, and six written comments were received during the project open house, which occurred on March 1, 2023. A listing of the comments and responses from the Project Proposer is found in **Table 1, "Mesenbrink Mixed-Use Development EAW – Comments Received and Responses."** Refer to **Appendix B** for agency comment letters in their entirety.

Table 1: Mesenbrink Mixed-Use Development EAW – Comments Received and Responses

Comment Number	Agency / Commenter	Comment	Response
1	OSA	Thank you for the opportunity to comment on the above listed project. Review of our files indicates there are no previously recorded archaeological sites, archaeological site leads, or burials in the proposed project area. However, the project area has moderate potential to contain archaeological sites or features, therefore, the Office of the State Archaeologist recommends a phase I archaeological reconnaissance conducted by a qualified archaeologist. The Minnesota Historical Society maintains a list of cultural resource specialists at: https://www.mnhs.org/preservation/directory.	On March 7, 2023, the Office of the State Archaeologist (OSA) issued a response in its review of the Mesenbrink Mixed-Use Development, Mankato, MN EAW. In its response, OSA stated no previously recorded archaeological sites, site leads, nor burials are revealed by current files. However, it stated that "the project area has moderate potential to contain archaeological sites or features, therefore, the Office of the Sate Archaeologist recommends a phase I archaeological reconnaissance [survey] conducted by a qualified archaeologist is recommended." Ahead of any ground disturbance associated with the proposed project's development, a Phase I archaeological reconnaissance survey will be completed by a qualified archaeologist, as recommended by OSA.
2	MnDOT District 7	The EAW notes possible mitigations at the State Hwy 22 & Hoffman Road intersection, given the anticipated traffic volumes from the proposed development: Protected/permitted signal phasing on State Hwy 22: this is not practical given the high-speed environment and anticipated heavy traffic volumes. As traffic volumes increase, permissive left turn phases tend to result in increased crash rates (e.g.: US 169 & State Hwy 22, on the south side of Saint Peter). Accordingly, MnDOT would not implement permissive left turn phasing in this circumstance as a mitigation to excessive delays. This strategy should not be considered as a mitigation.	No mitigation measures are required to accommodate site-generated traffic. That said, if conditions deteriorate at the intersection of TH 22 and Hoffman Road by 2045, MnDOT should consider redesigning the intersection. Potential minimal improvements--including extension of the existing westbound right turn lane back to Coneflower Lane and conversion of the lane to a shared through and right turn lane--will provide adequate additional capacity. The new through and right-turn lane from Coneflower Lane will require the reduction of the TH 22 southbound-to-westbound protective island and will change the right-turn movement to permissive rather than free flowing. Preliminary analysis indicates this improvement alone will provide adequate LOS for the intersection and all approaches. Also, protected permissive traffic signal phasing on the north and southbound TH 22 approaches, which is currently used at the TH 22 and Bassett Drive intersection, could be considered. It is noted the TH 22 volumes are greater at Bassett Drive, and the speed through the Bassett Drive intersection is only 45 mph. The change to protected/permissive phasing may or may not be practical as the speeds on TH 22 presently are 55 mph through the Hoffman Road intersection. That said, with the MAPO emphasis on urbanizing the study area through the year 2045, it is possible the speed on TH 22

Comment Number	Agency / Commenter	Comment	Response
			will be reduced through the Hoffman Road intersection in the future. This improvement by itself would not restore operations to acceptable levels, but could enhance the LOS by reducing overall delay. The strategies above are just suggestions to provide adequate capacity for the specific 2045 conditions studied. It is noted that MnDOT completed a corridor study in 2018 for TH 22, which suggested that traffic control at Hoffman Rd be converted to a 2-lane roundabout with mainline metering and right-turn bypass lanes for all approaches by year 2045. Review of operations with this improvement show acceptable overall level of service and delay at TH 22 and Hoffman Rd. That said, this improvement is not currently programmed. The City of Mankato will support MnDOT in the review of design alternatives to provide solutions for long range capacity enhancements.
3	MnDOT District 7	The EAW notes possible mitigations at the State Hwy 22 & Hoffman Road intersection, given the anticipated traffic volumes from the proposed development: Westbound right turn lane extension, and conversion to shared through/right lane: only part of this proposed mitigation is practical (extension). Conversion to a shared through/right lane is not feasible given the existing raised island on the west side of State Hwy 22. The presence of the island would prevent through traffic movements. Removal of the island would increase delay for southbound right turning vehicles as those vehicles would no longer have a non-yielding free-right-bypass. Additionally, conversion to a shared through/right lane could exacerbate delay for westbound right turning traffic as a single through vehicle at the front of the queue would prevent permissive right turn on red movements.	No mitigation measures are required to accommodate site-generated traffic. That said, if conditions deteriorate at the intersection of TH 22 and Hoffman Road by 2045, MnDOT should consider redesigning the intersection. Potential minimal improvements--including extension of the existing westbound right turn lane back to Coneflower Lane and conversion of the lane to a shared through and right turn lane--will provide adequate additional capacity. The new through and right-turn lane from Coneflower Lane will require the reduction of the TH 22 southbound-to-westbound protective island and will change the right-turn movement to permissive rather than free flowing. Preliminary analysis indicates this improvement alone will provide adequate LOS for the intersection and all approaches. Also, protected permissive traffic signal phasing on the north and southbound TH 22 approaches, which is currently used at the TH 22 and Bassett Drive intersection, could be considered. It is noted the TH 22 volumes are greater at Bassett Drive, and the speed through the Bassett Drive intersection is only 45 mph. The change to protected/permissive phasing may or may not be practical as the speeds on TH 22 presently are 55 mph through the Hoffman Road intersection. That said, with the MAPO emphasis on urbanizing the

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			study area through the year 2045, it is possible the speed on TH 22 will be reduced through the Hoffman Road intersection in the future. This improvement by itself would not restore operations to acceptable levels, but could enhance the LOS by reducing overall delay. The strategies above are just suggestions to provide adequate capacity for the specific 2045 conditions studied. It is noted that MnDOT completed a corridor study in 2018 for TH 22, which suggested that traffic control at Hoffman Rd be converted to a 2-lane roundabout with mainline metering and right-turn bypass lanes for all approaches by year 2045. Review of operations with this improvement show acceptable overall level of service and delay at TH 22 and Hoffman Rd. That said, this improvement is not currently programmed. The City of Mankato will support MnDOT in the review of design alternatives to provide solutions for long range capacity enhancements.
4	MnDOT District 7	Page 1 of the Traffic Analysis memo incorrectly identifies a 45 MPH speed limit for Hwy 22. The speed limit is 55 MPH in the vicinity of Hoffman Road.	Comment noted. The speed limit for Hwy 22 has been corrected in the Traffic Analysis Memo.
5	MnDOT District 7	Table 4 on Page 5 of the Traffic Analysis memo, shows building the proposed development will improve delay on State Hwy 22 (NBL & SBL) and decrease the WBT queue length. These improvements to delay and queue length are counterintuitive as the development would add traffic to the intersection without making any improvements at the intersection.	Comment noted. As stated on page 5 of the traffic memo: This study has utilized the industry current Synchro/SimTraffic software package (11th Edition) to analyze the 2025 and 2045 No-Build and Build conditions for the AM and PM peak hours. The reported results for the non-roundabout intersections are from the aggregate of 10 SimTraffic simulations, which use a random number generator to seed the network with vehicles. These results reflect dynamic conditions and are more accurate for the non-roundabout intersections than the results of the static analysis reported by Synchro. Due to the random number generator, results can sometimes show slightly better operations on minor movements under higher traffic conditions when the intersections are operating well. This can be seen when delays and queues noted in the Build Scenario are slightly less than the No-Build Scenarios. In this case, the overall delay for the intersection is greater under the build conditions and is similar for the westbound approach. The random number generator seeds the traffic at slightly different intervas

Comment Number	Agency / Commenter	Comment	Response
			sometimes resulting in small positive changes in delay and queue results.
6	MnDOT District 7	Tables 4 & 5 of the Traffic Analysis memo also refer to the intersection of State Hwy 3 and State Hwy 149 which are not near this development (these state highways are not in District 7 at all).	Comment noted. The Traffic Analysis Memo has been revised accordingly.
7	Blue Earth County	As mentioned in the EAW, annual precipitation has increased in the Le Sueur River Watershed. The proposed development is in an area of the State with the highest increase in annual precipitation in the recent 30-year time frame as shown in the graphic below. While annual precipitation has increased in Southern Minnesota, the frequency of large rain events has also increased. According to the State Climatology Office, "Heavy rains are now more common in Minnesota and more intense than at any time on record. Long-term observation sites have measured dramatic increases, including a 20% increase in the number of one-inch and a 65% increase in the number of three-inch rains. The size of the heaviest annual rainfall also has increased by 13%." The increase in the number and size of heavy rain events are likely more important in context to the impact of the proposed development on water resources and should be discussed in more detail in the EAW or included in future permitting processes for the site.	The proposed development design and associated stormwater management plan will meet all local, state, and federal regulations including, but not limited to, the MPCA NPDES Construction Stormwater Permit, the City of Mankato MS4 Permt, and the City of Mankato Grading Manual. These documents require the proposed development compared to the existing conditions to: not increase discharge rates, not increase total suspended sediments (TSS), not increase total phosphorus (TP), and where soils permit, retain 1.1 inches of runoff from all new and reconstructed impervious surfaces. The proposed grading plan will ensure that overflows are designed to protect existing and proposed infrastructure from flooding that could otherwise result from increasingly large and intense rainfall events caused by climate change.
8	Blue Earth County	This section does not list the required approvals for wetland replacement and sequencing.	Table 6, "Required Permits and Approvals," has been revised to include all known permits and approvals required for the Proposed Project.
9	Blue Earth County	This section does not include references to the Greater East Mankato Infill Service District Alternative Urban Areawide (AUAR) Review & Mitigation Plan (the original document or 2016 update), or the Blue Earth County Water Management Plan. Both of those documents have specific references for the project and project area that should be discussed in EAW review process. While the EAW mentions the Blue Earth County Land Use Plan, there are additional sections of the Blue Earth County Land Use Plan that contain useful references also. The planning documents can be found here:	The EAW document has been revised to include discussion of the Blue Earth County Water Management Plan. To ensure that the proposed project is consistent with water storage and wetland conservation principles in the Blue Earth County Land Use Plan, the proposed grading plan will ensure that overflows are designed to protect existing and proposed infrastructure from flooding that could otherwise result from increasingly large and intense rainfall events caused by climate change.

Comment Number	Agency / Commenter	Comment	Response
		Final Alternative Urban Areawide Review: https://content.mankatomn.gov/files/9293-Final-AUAR-and-Mitigation-Plan.pdf Blue Earth County Water Management Plan: https://www.blueearthcountymn.gov/WaterPlan Blue Earth County Land Use Plan: https://www.blueearthcountymn.gov/LandUsePlan	Because over five years have passed since the RGU adopted the most recent AUAR revision in 2016, the AUAR is no longer considered valid as a substitute form of review for the Project Site (Minnesota Rules, Part 4410.3610.Subp.7.A).
10	Blue Earth County	The EAW States: "The project will also include the construction of a park and five small stormwater ponds." The proposed improvement map in Figure 3 does not appear to include the park.	The construction of a park is no longer included in the scope of the Proposed Project. Parkland dedication or payment-in-lieu of parkland dedication will be determined in the subdivision process by the City of Mankato.
11	Blue Earth County	The AUAR 2016 Update has several references to the Blue Earth County Greenprint. It states: "The Blue Earth County Greenprint Program is an initiative that will help preserve natural resources throughout Blue Earth County and Mankato. It is intended to bring natural resources to the forefront for planning and decision making. The County's Greenprint plan has identified 'Greenprint' areas (See Exhibit H-Existing Conditions Map) which are defined as existing natural connections in the landscape that facilitate movement of plants and animals between larger patches of habitat." Starting on Page 78 of the Blue Earth County Water Management Plan, the Greenprint Priority Areas are discussed. The Greenprint map on Page 79 of the Water Management Plan includes the public water wetland and connected basin to the west as a Greenprint Corridor and the area adjacent to the basins as a Planned Greenprint Corridor Connection. The proposed development appears to meet the minimum setbacks for structures but does not appear to consider the mitigation concepts that are discussed on Page 20 of the 2016 AUAR update or the County Greenprint. Page 11 of the Blue Earth County Water Management Plan states:	The EAW document has been revised to include discussion of the Blue Earth County Water Management Plan and associated Blue Earth County Greenprint areas. Because over five years have passed since the RGU adopted the most recent AUAR revision in 2016, the AUAR is no longer considered valid as a substitute form of review for the Project Site (Minnesota Rules, Part 4410.3610.Subp.7.A).

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		"POLICY STRATEGY: ENVIRONMENTAL REVIEW. Policy: Aquatic and natural resource priority areas in the Greenprint and the Blue Earth County Water Management Plan should be included in environmental review documents, such as Environmental Assessment Worksheet (EAW), Environmental Impact Statement (EIS) and Alternative Urban Area Review (AUAR) to assess compatibility of proposed projects with local government plans. (Reference: Environmental Review, Minnesota Rules, part 4410.1200 subpart H. and 4410.2100)"	
12	Blue Earth County	The geology section references the 1991 Blue Earth County Geological Atlas. Blue Earth County has a new geologic atlas (C-26, Part A) which was updated in 2011. Part B of the Blue Earth County Geologic Atlas was updated in 2016. The Geologic Atlas Part A, along with the Minnesota Well Index, document that wells finished in the glacial drift portion of the geology close to this site range from 208 feet to 234 feet in depth. There is a gas dome well boring just southwest of this Study Area which was drilled to 605 feet. Unique well record # 463783 just east of the site is finished in the Prairie Du Chien & Jordan Sandstone bedrock units. This is contradictory to the current EAW report which claims none of the local nearby wells reach the bedrock.	The EAW document has been revised to include the requested information.
13	Blue Earth County	The soils & topography section includes a NRCS Soil Classification chart. This chart lists the wind erodibility number but does not address the site soil limitations for residential and commercial buildings. The site contains wet / heavy soils which are not susceptible to wind erosion. These soils will likely require soil correction and drainage tiles to accommodate the projected development. This should be discussed in this section. The NRCS-Web Soil Survey limitations for Small Commercial Buildings for the site are included in Attachment 1 and the limitations for Dwellings with Basements are included in Attachment 2.	Soil corrections will be reviewed with a geo-technical specialist for any necessary site corrections. This will be reviewed during the final design process for the proposed development.
14	Blue Earth County	In the bulleted list, the EAW states Wetland Basins 2-10, Basin 12, and Basin 15 are seasonally flooded basins located along the western edge of the property. The wetland basins are dispersed throughout the proposed project site with few basins located	Clarifying statement on wetland locations: Wetland 1: North edge Wetland 2: West edge

Comment Number	Agency / Commenter	Comment	Response
		along the western edge of the property. The information describing the wetland locations is inaccurate. This section should be updated to reflect locations of the basins being more than just on the western edge of the property as shown in the map in Figure 5 of the Wetland Delineation Report (Page 146 of the EAW PDF).	Wetland 3: South edge Wetland 4: West center Wetland 5: East edge Wetland 6: South edge Wetland 7: East center Wetland 8: Center Wetland 9: South edge Wetland 10: South edge Wetland 12: East center Wetland 15: East center
15	Blue Earth County	This section does not include the requirements of including the well logs identified in "Figure 9". This information is available through the Minnesota Well Index. Figure 9 shows that the nearby wells are finished in the drift (QBAA), Prairie Du Chien Limestone (OPCJ), & multiple aquifers (MTPL). The current EAW aquifer description only discusses the Prairie Du Chien aquifer. The EAW description of depth to groundwater in the Study Area is very generic. It would be beneficial to list the depth to groundwater for each soil type. The EAW also mis-states that the proposed project is not within a DWSMA. It lies on the eastern edge of the City of Mankato's Surface Water DWSMA for their Ranney collector wells.	The EAW document has been revised to include the depth to groundwater for each soil type within the Study Area and clarify that the proposed project lies on the eastern edge of the City of Mankato's Surface Water DWSMA for their Ranney Collector wells. Additional information about the nearby wells has been provided, and well logs are included as an appendix to the updated EAW document.
16	Blue Earth County	The Revised Environmental Assessment Worksheet Guidance from January 2022 have several areas that should be discussed in the EAW. As a result of the loss of existing water storage on the site by the proposed filling of existing wetlands and other depressions on the site, the increases in rainfall and frequency of large rain events are even more important. The revised EAW standards include important guidance on this topic. Some areas from the guidance are listed below: "Discuss the effects of the cumulative increase in impervious surfaces in the immediate watershed of the project location and its effect on downstream waterbodies within the project watershed along with efforts to mitigate these effects. Examples of potential stormwater impacts may include increases in receiving	The proposed development design and associated stormwater management plan will meet all local, state, and federal regulations including, but not limited to, the MPCA NPDES Construction Stormwater Permit, the City of Mankato MS4 Permit, and the City of Mankato Grading Manual. These documents require the proposed development compared to the existing conditions to: not increase discharge rates, not increase total suspended sediments (TSS), not increase total phosphorus (TP), and where soils permit, retain 1.1 inches of runoff from all new and reconstructed impervious surfaces. The proposed grading plan will ensure that overflows are designed to protect existing and proposed infrastructure from flooding that could otherwise result from increasingly large and intense rainfall

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		water flows and base flow, increase in downstream flood risk, channel erosion, thermal changes to trout streams and/or an increase or change in the generation of pollutants in runoff." "Discuss how additional stormwater flows resulting from more frequent and intense rainfall, increases in runoff from winter snowmelts, and the impacts of warmer temperatures may intensify the effects on water quality and quantity." "Climate change trends toward more frequent and intense extreme precipitation, riverine flooding, localized flash flooding at streams, stormwater management facilities and in upland areas lacking overflow and conveyance capacity." "Increased frequency and intensity of freeze/thaw cycles due to winter warming increases deicing chemical, salt and sand application, eventually being carried by runoff to downstream water bodies if unmanaged." "Stormwater management features become overwhelmed and have reduced effectiveness for controlling the rate of runoff or pollutant capture. Increased sediment and contaminants enter natural waterbodies."	events caused by climate change. Design efforts will be utilized to apply best management practices for reduction of deicers and snow management while complying to City of Mankato design compliances. Stormwater management does require maintenance to function properly and should be accounted for by the owner(s).
17	Blue Earth County	The EAW States that "The Proposed Project would maintain the existing conditions characteristics and patterns with the mall collected runoff in the property discharging to the same unnamed public water wetland to the north." Figure 11 in the "Existing Drainage Patterns" does not accurately depict the existing drainage patterns on the site and appears to be based on generalized watershed boundaries. As shown on the map in Attachment 3, currently just over 29.1 acres on the Mesenbrink property drain away from the public water wetland (7-71W). Over 20-acres of that area are proposed to be redirected to	Figure 11, "Existing Drainage Patterns," and Figure 12, "Proposed Drainage Patterns," have been revised accordingly.

Comment Number	Agency / Commenter	Comment	Response
		the north towards the public water wetland. The runoff statements should be revised, and the modelling related to stormwater should be based on more accurate base information for existing conditions.	
18	Blue Earth County	Based on the proposed development plan included in the EAW it appears that existing conditions on the site will be changed. Review of the development plan shows that the wetlands that are currently on the site are to be removed and the storage capacity that these basins retained will be lost and contribute to quicker bounce of the unnamed public water wetland to the north. Quicker bounce of the unnamed wetland to the north and a higher water level than the historical average has already been discussed based on impacts from other projects in the surrounding area. On May 11, 2022, Blue Earth County Property and Environmental Resources staff met with City of Mankato staff, Minnesota Department of Natural Resources Area Hydrologist, and a concerned nearby landowner to discuss the issues surrounding the unnamed public water basin water level and quicker bounce after storm events.	The proposed development design and associated stormwater management plan will meet all local, state, and federal regulations including, but not limited to, the MPCA NPDES Construction Stormwater Permit, the City of Mankato MS4 Permit, and the City of Mankato Grading Manual. These documents require the proposed development compared to the existing conditions to: not increase discharge rates, not increase total suspended sediments (TSS), not increase total phosphorus (TP), and where soils permit, retain 1.1 inches of runoff from all new and reconstructed impervious surfaces.
19	Blue Earth County	The EAW states: "For areas draining directly to the unnamed public water wetland, converting what is row-crop agriculture today to turf will reduce pollutant loads including total suspended solids (TSS)." There are less than 10 acres of cropland that drain directly to the unnamed public water wetland. As the EAW mentions previously, the site is very flat. Currently, there is not significant concentrated surface water flow from the cropland on this property draining directly to the unnamed public water wetland. Terrain models like stream power index show limited or low values of concentrated water flow from the cropland portion of this parcel due in part to the fields being generally flat. The statement about "converting what is row-crop today to turf will reduce pollutant loads" is also not consistent with the AUAR	The proposed development design and associated stormwater management plan will meet all local, state, and federal regulations including, but not limited to, the MPCA NPDES Construction Stormwater Permit, the City of Mankato MS4 Permit, and the City of Mankato Grading Manual. These documents require the proposed development compared to the existing conditions to: not increase discharge rates, not increase total suspended sediments (TSS), not increase total phosphorus (TP), and where soils permit, retain 1.1 inches of runoff from all new and reconstructed impervious surfaces. Per drainage area maps developed by Bolton & Menk and Blue Earth County, more than 10 acres of cropland drain directly to the unnamed public water wetland. The AUAR is largely out of date for this area of development due to

Comment Number	Agency / Commenter	Comment	Response
		that was prepared for this area. The AUAR sates that there will most likely be an increase in phosphates and other substances and that there likely could be impacts to wetlands from urban runoff. The EAW should describe the basis for the statement regarding the reduction in pollutant loads and why the information in the AUAR is contradictory. The original AUAR and 2016 update for this area state: "Post-development site runoff will be typical of urban and mixed-use developments. There will most likely be an increase in phosphates and other substances typically associated with urban runoff. The quantity of runoff will most likely increase because of the addition of impervious surface area such as the construction of pavement, buildings and parking lot area. The existing wetlands on the site may be a concern with an increase in the amount of urban runoff. In general, urban runoff impacts to wetlands include: 1) increases in wetland bounce, 2) decrease in wetland plant and animal species diversity, 3) long-term alterations or destruction of wetland type and function, 4) increased peak discharge rates, 5) reduction in groundwater infiltration, and/or 6) secondary wetland impacts resulting from watershed alterations." The Blue Earth County Water Management Plan also discusses the impact of development on wetlands. On Page 94 of the Blue Earth County Water Management Plan, wetlands in urban watersheds are discussed. "Urban development trends generally are detrimental to wetlands. Many wetlands are lost in the process and those that remain are degraded by the high intensity of uses in the urbanized surrounding areas. For example, the almost continuous concrete, asphalt, and rooftops that harden the landscape result in increased levels of stormwater runoff."	previous land use changes since 2016, which is one of the triggers for the required preparation of this EAW. Therefore, some information in the AUAR would not be accurate for this development. The wetlands to be replaced will need to be accounted for accordingly in stormwater management features within the development.

Comment Number	Agency / Commenter	Comment	Response
		"The wetlands needed in some parts of urban watersheds end up being planned and implemented to perform functions such as flow attenuation, water quality improvement, and floodwater retention at the expense of overall wetland quality. These working wetlands, because of the constant stress they experience, may be mostly or completely comprised of an invasive species plant community and have poor water quality, high rates of sedimentation, and other indications of degradation. However, their role is not to be pristine examples of wetlands; instead, their mission is to perform their designed functions in a way that maximizes the overall good for the watershed."	
20	Blue Earth County	The AUAR for this area describes alternative stormwater treatment concepts and exhibit N-2 shows filtration (Hoffman Filtration) along the extension of Hoffman Road. The EAW does not address the alternative stormwater concepts outlined in the AUAR. On Page 34, the 2016 AUAR update states: "Due to the prevalence of relatively impermeable clay soils and high water table as discussed previously, traditional stormwater detention ponds will play a vital role in both stormwater treatment and rate control. The ponds will be designed to comply with City of Mankato standards and the design guidelines as outlined in the 2005 Minnesota Stormwater Manual (Updated 2008). Typical design considerations will include side slopes that meet site safety and maintenance requirements, outlets that provide skimming as required by the NPDES requirements, and rate control to reduce peak flows to the 2, 10, 100 and back-to-back 10 year design storms. Based on known erosion concerns in the downstream channel, preliminary sizing has been performed to reduce discharge rates (and therefore velocity) to below the existing rates. "Several portions of the Project have very flat terrain, and will be a challenge to design stormwater facilities. To adequately provide drainage for these areas as well as reduce costs, it is proposed that long, linear ponds be constructed. This can be noted in Exhibit N-2-	The proposed development design and associated stormwater management plan will meet all local, state, and federal regulations including, but not limited to, the MPCA NPDES Construction Stormwater Permit, the City of Mankato MS4 Permit, and the City of Mankato Grading Manual. These documents require the proposed development compared to the existing conditions to: not increase discharge rates, not increase total suspended sediments (TSS), not increase total phosphorus (TP), and where soils permit, retain 1.1 inches of runoff from all new and reconstructed impervious surfaces. Previous drainage studies (Exhibit N-2 of the AUAR) are conceptual based on ideas by others that may or may not have had a specific project in mind. It is not necessarily reasonable to hold these ideas to a completely different land use and other ideas. The AUAR is a broad study of land use that cannot predict all changes and proposed projects. During final design of the development a detailed stormwater model will be developed to document that the proposed project is meetiling all applicable regulations. The existing conditions stormwater model will divide the site into multiple subwatersheds for each existing depression within the property and for those areas flowing outside the limits.

Comment Number	Agency / Commenter	Comment	Response
		Alternative Stormwater Treatment Concepts in the northwest portion of the study area." There have been erosion issues in the stream channel downstream of this site in the City of Mankato and near the outlet of Wilson Creek into the Le Sueur River. The AUAR for this area states: "Based on known erosion concerns in the downstream channel, preliminary sizing has been performed to reduce discharge rates (and therefore velocity) to below the existing rates." In the Near Channel Erosion section of the Blue Earth County Water Management Plan on Page 205, the Plan states: Wilson Creek Watershed "The Wilson Creek watershed is located in the Le Sueur River watershed. There are significant erosion problems in the meandering stream channel/ravine locally-named Wilson Creek. The watershed is drained by extensive urban stormwater systems and a county ditch. Urban land use and soil types with low infiltration capability in the Wilson Creek watershed are a challenge for managing hydrology to reduce erosion in this watershed." STRATEGY: STRUCTURAL AND NATURAL RESOURCE PROTECTION: Action: Protect and restore wetlands and increase water storage in the County Ditch 12 watershed in areas identified in the Blue Earth County Water Management Plan, City of Mankato Park and Open Space Plan or City of Mankato Wilson Creek Stormwater Master plan. In the Drainage Ditches – 103E Drainage Systems section of the Blue Earth County Water Management Plan on Page 206 the Plan describes watershed goals applicable to drainage systems, including the following:	

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		• Reduce the magnitude and duration of peak flows with wetland restoration and water storage • Reduce erosion and sedimentation in the drainage system • Reduce nitrogen in downstream waters • Reduce phosphorus in lakes and rivers Additionally, in this section of the Blue Earth County Water Management Plan on Page 213, the Plan describes the issues and potential projects in County Ditch 12 as "Increase Water Storage, Downstream Erosion in CD outlet, and the Wilson Creek Ravine." Since the AUAR and the Blue Earth County Water Management Plan document the importance of stormwater storage, existing downstream erosion, the challenges for stormwater management due to the wet soils on the site, and the increases in the frequency of large storm events, the EAW process and permitting process should address this issue in more detail. In addition, the AUAR includes several statements about developers maintaining pre-development runoff rates. The calculations of these runoff rates should include the quantity of water that is currently stored in the wetland basins and other natural depressions on the site. Significant natural water storage currently exists on the site and many of these storage areas are planned to be converted to impervious surfaces.	
21	Blue Earth County	The EAW States: "The remaining eleven wetlands are only under the jurisdiction of the WCA. Historically, these wetlands have been in crop rotation and have been heavily degraded by the removal of wetland hydrology and hydrophytic plant communities. Due to the degradation that has occurred, these wetlands are eligible for sequencing flexibility. MN Rule 8420.0520, Subpart 7a.A.1, allows for flexibility in sequencing if the wetlands to be impacted have been degraded to the point where replacement of it would result in a certain gain in functional and public value."	Wetland 1 is a large Type 1/3/5/7 natural wetland complex located on the north edge of the site. Wetlands 2-10, 12, and 15 are Type 1 seasonally flooded farmed basins that have been planted and completely farmed through in recent years. Their soil structure, hydrology, and hydrophytic plant community have been removed and they are highly degraded. When they were flagged, they were found to be planted in soybeans. These wetlands are eligible for sequencing flexibility

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		As the Minnesota Rule states, "flexibility in application in application of the sequencing steps may be requested by the applicant and allowed at the discretion of the local government unit, subject to the conditions in item B, as determined by the local government unit, if…". It should be noted that the determination on sequencing flexibility has not been made and that Minnesota Rules Chapter 8420 includes items Subpart 7A 2-4 and Subpart 7B that also need to be taken into consideration when the determination on sequencing flexibility is made. The statement regarding the wetlands being heavily degraded should be expanded upon and reviewed more thoroughly in the EAW or the permitting process. These shallow basins serve an important function locally for stormwater storage or flood attenuation. Since the basins are farmed, they don't have established unique vegetation, but they do have unique features like crayfish burrows. In addition, the AUAR for this area contains the following references to sequencing and avoiding wetlands that should also be considered before sequencing flexibility is allowed: Page 25 "Due to the lack of current development in the area, it is expected that prudent and feasible alternatives exist, and that wetland impacts can be avoided. Some possible circumstances occurring under sequencing flexibility outlines under WCA Ch. 8420.0520 under which impacts to wetlands can genuinely be considered anything but avoidable may include the following:" Page 26. "All sequencing requirements must be satisfied prior to the City's approval of any wetland impacts both direct and indirect have been considered. Proper sequencing implies that all attempts to avoid wetland impacts, both direct and indirect, have been considered. If avoidance cannot be accomplished, then the	according to M.R. 8420.0520 Subp.7a. Most of the LGU's require a MNRAM analysis of the wetland functions and values to document the wetland's low quality and degraded nature which we intend to do during wetland permitting.

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		wetland impacts must be minimized by limiting activities within the wetland to the maximum feasible extent."	
22	Blue Earth County	There is a pipeline that bisects the site in a north/south direction. This pipeline is discussed in the AUAR on Page 14 and the map on Page 246 shows the pipeline and easement. It appears that the location of the pipeline easement may have been considered in the proposed development, but this should be discussed.	The EAW document has been revised to discuss the referenced pipeline. The proposed project was designed to accommodate for the location of the pipeline, and no impacts related to the pipeline are anticipated.
23	Blue Earth County	Figure 4 does not accurately reflect the existing land cover. There are more wetland basins not shown on the map (see Appendix B Figure 5 from the Wetland Delineation Report) and the lawns/landscaping strips on the east and south edges are currently cropland.	Figure 4, "Existing Land Cover," has been revised accordingly.
24	Blue Earth County	Figure 9 shows 50-foot bedrock contour elevations that are labeled depth to bedrock. The map does not match the depth to bedrock map from the Blue Earth County Geologic Atlas Part A which has the depth to bedrock at 201 to 250 feet below the ground surface for this site. The map in Figure 9 shows Depth to Bedrock from 750 feet to 900 feet on this site. It should be clarified if this map is showing bedrock elevations or depth to bedrock. The most current data and maps for the Blue Earth County Geologic Atlas can be downloaded with this link: https://conservancy.umn.edu/handle/11299/116097	Figure 9, "Geologic Conditions & Groundwater," has been revised accordingly.
25	MnDNR	Wetland basin 07007100 is a public water wetland http://www.revisor.leg.state.mn.us/stats/103G/005.html, and on the public water inventory map and document on the public water designation records for Township 108, Range 26, Section 14, 15. This public water wetland was surveyed in 2013 to establish the OHWL for this basin. During that survey, it was noted that the entire basin, including the basin in the proposed project area, is public water. So an additional updated public water wetlands and OWHL boundaries are required for this project proposal to reflect the entire public water wetland accurately. This boundary and OHWL update will change the project proposal by applying the correct OHWL boundary for setbacks, lot sizes, impervious calculations, and other related natural environment lake	Field Survey of the entire property including the wetland area was completed on 10-27-2022. The OHW (Elev. = 1004.6') was established using field data. The 2013 DNR Survey was not provided. Additionally, the letter from the DNR references the Blue Earth County Shoreland Ordinance. This property will be annexed into the City of Mankato, and thus will be required to follow the newly-adopted City of Mankato Shoreland Ordinance. There is no reference to the 2013 DNR Survey for the determination of the OWH in the new adopted ordinance by the City of Mankato. From the adopted City of Mankato Shoreland Ordinance: FF. Ordinary High-Water Level. The boundary of public waters and wetlands and shall be an elevation delineating the highest water

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		classification standards as part of the Shoreland Ordinance. Please get in touch with DNR when you wish to apply the correct public water wetland boundary and OHWL for this project area.	level which has been maintained for a sufficient period of time to leave evidence upon the landscape, commonly that point where the natural vegetation changes from predominantly aquatic to predominantly terrestrial. For watercourses, the ordinary high-water level is the elevation of the top of the bank of the channel. For reservoirs and flowages, the ordinary high-water level is the operating elevation of the normal summer pool.
26	MnDNR	Blue Earth County Water Plan, Le Sueur River one water plans should be referenced, and planning principles applied to this project.	The EAW document has been revised to include discussion of the Blue Earth County Water Management Plan and the Le Sueur River One Watershed One Plan.
27	MnDNR	The project map does not show 112-family homes. Concerning the project magnitude, the protected water wetland is classified as a Natural Environment Lake classification under the City of Mankato shoreland ordinance and Blue Earth County Shoreland ordinance. The project maps do not show any tiered analysis for the development required to meet the Natural Environment standards for OHW setback, impervious, lot size, or PUD density. Natural environment lakes are generally small, often shallow lakes with limited capacities for assimilating development and recreational use impacts. They often have adjacent lands with substantial constraints for development, such as high water tables, exposed bedrock, and unsuitable soils. These lakes, particularly in rural areas, usually have little-existing development or recreational use and are more sensitive to disturbance. The tired analysis required for the shoreland impact zone, or 1,000 feet landward from the ordinary high water elevation of 1004.6 NAVD 88 datum, will need to reflect the entire public water basin. The DNR Ordinary High Water Level (OHWL) survey from 2013 indicates the far extreme western portion of the basin was not included on the PWI map but is part of the basin based on a low connection below the OHW that was found during the 2013 field survey. So the proposed project magnitude of 112 family homes and 713 apartment units may not be possible when meeting the tired analysis requirements for a natural environment lake using the correct OHWL delineation.	Field Survey of the entire property including the wetland area was completed on 10-27-2022. The OHW (Elev. = 1004.6') was established using field data. The 2013 DNR Survey was not provided. Additionally, the letter from the DNR references the Blue Earth County Shoreland Ordinance. This property will be annexed into the City of Mankato, and thus will be required to follow the newly-adopted City of Mankato Shoreland Ordinance. There is no reference to the 2013 DNR Survey for the determination of the OWH in the new adopted ordinance by the City of Mankato. From the adopted City of Mankato Shoreland Ordinance: FF. Ordinary High-Water Level. The boundary of public waters and wetlands and shall be an elevation delineating the highest water level which has been maintained for a sufficient period of time to leave evidence upon the landscape, commonly that point where the natural vegetation changes from predominantly aquatic to predominantly terrestrial. For watercourses, the ordinary high-water level is the elevation of the top of the bank of the channel. For reservoirs and flowages, the ordinary high-water level is the operating elevation of the normal summer pool.

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28	MnDNR	Project design - Blue Earth County Land Use Plan proposes water storage and wetland protection- this project removes many wetlands and increases impervious and surface runoff. The project will further induce frequent flooding in the existing public water wetland and the stream outleting the wetland and the Le Sueur River. How will this added runoff, flooding, and significant added water volume be mitigated? Not just for existing but future high-intensity rainfall events, and what resiliency and assurances are considered to mitigate these changes?	The proposed development design and associated stormwater management plan will meet all local, state, and federal regulations including, but not limited to, the MPCA NPDES Construction Stormwater Permit, the City of Mankato MS4 Permit, and the City of Mankato Grading Manual. These documents require the proposed development compared to the existing conditions to: not increase discharge rates, not increase total suspended sediments (TSS), not increase total phosphorus (TP), and where soils permit, retain 1.1 inches of runoff from all new and reconstructed impervious surfaces. The proposed grading plan will ensure that overflows are designed to protect existing and proposed infrastructure from flooding that could otherwise result from increasingly large and intense rainfall events caused by climate change.
29	MnDNR	The increased stormwater and discharge from this project will run off roads, parking lot, driveways, and walkways into stormwater systems, which appear to be emptying directly or indirectly into the public water wetland. increasing chlorides become toxic in aquatic systems rendering them incapable of supporting specific aquatic life. Because chlorides are soluble, how are these contained and prevented from impacting public water wetlands? Are stormwater ponds effective mitigation for chloride and other stormwater contaminates?	The overwhelming majority of the proposed site, including impervious surfaces, will be routed through a stormwater BMP before leaving the property. Bolton & Menk is pioneering Low Salt design strategies through the development of its program LSiD-a set of design guidlines focused on improved winter performance, which looks at several site plan design strategies for reducing salt need. Design strategies include grading so that snow that falls outside of impervious surfaces does not melt and migrate onto impervious surfaces, grading to keep meltwater out of traffic paths, and moving building entrances to face the sun.
30	MnDNR	Because of the proposed high degree of impervious runoff with this project which appears to be directly or indirectly drained into a public water wetland, chlorides, oils, fertilizer, residential chemicals, and yard and animal waste will all be discharged into the public water. How will this be mitigated to prevent degradation of the public water basin?	The overwhelming majority of the proposed site, including impervious surfaces, will be routed through a stormwater BMP before leaving the property. Filtration basins will be utilized where grades permit and wet sedimentation basin designs will incorporate outlet skimmers to prevent contaminants to the maximum extent practicable from reaching the public water wetland to the north. Bolton & Menk is pioneering Low Salt design strategies through the development of its program LSiD-a set of design guidlines focused on improved winter performance, which looks at several site plan design strategies for reducing salt need. Design strategies include

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			grading so that snow that falls outside of impervious surfaces does not melt and migrate onto impervious surfaces, grading to keep meltwater out of traffic paths, and moving building entrances to face the sun.
31	MnDNR	The entire project area is classified as hydrologic soils C/D (Table 7) having poorly to very poorly drained clays and muck soils. Additionally, acres of existing natural wetlands will be filled and lost based on the proposed project. These shallow wetlands represent critical groundwater recharge and infiltration areas, critical habitats for aquatic plants, amphibians, reptiles, insects, waterfowl, and other mammals. These wetlands are part of a larger wetland complex along with the public water wetland. How are these wetland water quality and critical habitats being mitigated? Wetland replacement credits only offer the same ecological values as natural wetlands if the mitigated wetland is a restored natural wetland. The wetlands impacted by this proposed project are, in fact, natural wetlands. How is this loss in wetland part of the climate change resiliency and adaptive preparation process to ensure this project will not further flooding, or downstream impacts, reduce water infiltration and protect properties included in and downstream of this development? Has consideration been given to making this property a wetland banking site to help mitigate all of the potential wetland impacts expected with the urban growth and development between Mankato and Eagle Lake?	Wetland 1 is a large Type 1/3/5/7 natural wetland complex located along the north edge of the site and will be preserved by the project. However, wetlands 2-10, 12, and 15 are Type 1 seasonally flooded farmed basins that are highly degraded. These basins are best mitigated with an onsite addition to wetland 1 or with high quality wetland bank purchase from the same bank service area per WCA rules. Preserving or avoiding the Type 1 seasonally flooded farmed basins would not result in a gain in wetland functions and values unless they were replaced with high quality wetlands, which is why wetland banking appears to be a good replacement choice unless the LGU would like some onsite replacement, which is a permitting decision.
32	MnDNR	This basin 07007100 is a public water wetland http://www.revisor.leg.state.mn.us/stats/103G/005.html as such, any impacts to the course, current, or cross-section will require a public water permit. The proposed project will have added runoff and stormwater directed into this public water basin and, therefore, require a Public Water Permit https://www.dnr.state.mn.us/waters/watermgmt_section/pwpermits/index.html. As part of the permit evaluation, DNR requests hydraulic modeling to assess the potential impact of this project on the protected water wetland. Information on water quality and	No work is proposed at or below the ordinary high-water level for the public water wetland. A buffer from the public water wetland will also be observed.

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		quantity for the 5, 10, 25, 50, 100, and 500-year storm events will be needed for 48 and 72-hour rainfall events. Modeling should include the entire watershed for the public water wetland to fully assess projected changes in lake levels, water quality, and flooding due to the potential significant inflow and runoff from this proposed development.	
33	MnDNR	Figure 3. references an incorrect determination for the OHWL for Public Water Basin. The DNR Ordinary High Water Level (OHWL) survey from 2013 indicates the far extreme western portion of the basin was not included on the PWI map but is part of the basin based on a low connection below the OHW that was found during the 2013 field survey. So a redetermination of this OHWL boundary for this project is necessary for correct tired development analysis, setback, lot sizes and impervious area.	Field Survey of the entire property including the wetland area was completed on 10-27-2022. The OHW (Elev. = 1004.6') was established using field data. The 2013 DNR Survey was not provided. Additionally, the letter from the DNR references the Blue Earth County Shoreland Ordinance. This property will be annexed into the City of Mankato, and thus will be required to follow the newly-adopted City of Mankato Shoreland Ordinance. There is no reference to the 2013 DNR Survey for the determination of the OWH in the new adopted ordinance by the City of Mankato. From the adopted City of Mankato Shoreland Ordinance: FF. Ordinary High-Water Level. The boundary of public waters and wetlands and shall be an elevation delineating the highest water level which has been maintained for a sufficient period of time to leave evidence upon the landscape, commonly that point where the natural vegetation changes from predominantly aquatic to predominantly terrestrial. For watercourses, the ordinary high-water level is the elevation of the top of the bank of the channel. For reservoirs and flowages, the ordinary high-water level is the operating elevation of the normal summer pool.
34	MnDNR	Basin 07007100 is a public water wetland in the northern and western portions of the project area. As noted, additional updated OHWL and public water basin boundaries are required for this project based on information included in this proposal. Any wastewater or stormwater discharged directly or indirectly to the public water basin will need to be covered in the DNR Public Water Permit. Any water withdrawn from the DNR Public Water basin will be covered under a DNR Approaration Permit.	No work is proposed at or below the ordinary high-water level for the public water wetland. A buffer from the public water wetland will also be observed. The proposed project is not anticipated to require a DNR Appropriation permit.

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35	MnDNR	Section 12bii requires the proposer to discuss the environmental effects of stormwater discharges on receiving water bodies post-construction, including how the project will affect runoff volume, discharge rate, and change in pollutants. The EAW notes that runoff from the proposed project would be collected into stormwater sewer pipes and routed to onsite stormwater wet sedimentation basins to remove pollutants and regulate discharge rates leaving the property at or below existing conditions. The project plans and topography show that all surface and stormwater runoff would eventually be directed into the existing public water wetland. Even after going through a stormwater treatment pond, stormwater carries sediment, chlorides, pesticides and herbicides, oil, grease, and heavy metal such as Cd, Cr, Cu, Ni, Pb, and Zn. No modeling or design information needs are provided. Please provide more information on: · how the ponds will be designed to treat water quality · the runoff volumes for a range of storm events and the change in runoff volume and peak flow due to the development · where the stormwater ponds drain to and impacts to any receiving waters · the presence of any agricultural drainage tile, what will be done with it, and how it interacts with the stormwater system · how the pond and its outlet will be designed to assure it does not support and/or propagate invasive fish (e.g., goldfish, carp, etc.)	The proposed development design and associated stormwater management plan will meet all local, state, and federal regulations including, but not limited to, the MPCA NPDES Construction Stormwater Permit, the City of Mankato MS4 Permit, and the City of Mankato Grading Manual. These documents require the proposed development compared to the existing conditions to: not increase discharge rates, not increase total suspended sediments (TSS), not increase total phosphorus (TP), and where soils permit, retain 1.1 inches of runoff from all new and reconstructed impervious surfaces. The proposed design is only at the concept level at this date and as a result no hydraulic modeling has been completed and final stormwater BMP routing is still to be determined. Filtration basins will be utilized where grades permit and wet sedimentation basin designs will incorporate outlet skimmers to prevent contaminants to the maximum extent practicable from leaving the site. The stormwater management plan for the site will follow best recommended design practices outlined within the City of Mankato Grading Manual from the MN Stormwater Manual. Modeling and a formal stormwater management plan will be prepared as part of the construction documents, platting, and City of Mankato approval process.
36	MnDNR	The existing project area comprises a public water wetland, poorly drained farm ground, and many small seasonal wetlands that exist because of the poorly drained hydric soils across the project area. The small seasonal wetlands and the public water wetland represent a wetland complex that is a habitat for fish, amphibians, reptiles, insects, waterfowl, and mammals. Replacing the existing project area with housing, apartments, impervious roads, parking lots, and lawn grass will effectively remove all the small seasonal wetlands and increase runoff by a multiplying factor of 5 times or	The proposed development design and associated stormwater management plan will meet all local, state, and federal regulations including, but not limited to, the MPCA NPDES Construction Stormwater Permit, the City of Mankato MS4 Permit, and the City of Mankato Grading Manual. These documents require the proposed development compared to the existing conditions to: not increase discharge rates, not increase total suspended sediments (TSS), not increase total phosphorus (TP), and where soils permit, retain 1.1 inches of runoff from all new and reconstructed

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		more. This will displace all plants and animals in or using these seasonal wetlands. The project plans and topography show that all surface and stormwater runoff would likely be directed into the existing public water wetland. Even after going through a stormwater treatment pond, stormwater carries sediment, chlorides, pesticides and herbicides, oil, grease, and heavy metal such as Cd, Cr, Cu, Ni, Pb, and Zn. This runoff would harm all fish, wildlife, amphibians, and reptiles that live and use the public water wetland and degrade the entire wetland's water quality as an aquatic habitat over time. So this project will have a potentially significant degrading impact on the fish, wildlife, and water quality for this entire project area and connected surrounding natural resources. A significant native vegetative buffer is needed around the public water wetland basin. Has that been considered? Also, complete mitigation of all surface and stormwater generated from the project area is necessary to protect fish, wildlife, and related aquatic resources in the public water wetland. Please describe how these short- and long-term impacts will be mitigated to fully protect fish and wildlife in and around the project area.	impervious surfaces. Different stormwater treatment methodologies have different abilities to remove pollutants. As the proposed design is only at the concept level at this date, treatment methods have not been determined for this project, and the short- and long-term impacts to the public waters wetland can not be determined at this time.
37	Linda Wilmes	The number of housing units have changed from 73 houses to 112 houses. The apartment units changed from 400 to 713 apartment units.	The original concept plan shown to the neighborhood during the Land Use Amendment process was created prior to the adoption of the shoreland ordinance. The concept plan shown had 113 single family lots, 530 apartment units, 21,000 sq.ft. of retail center and 5,400 sq.ft. C-Store (original concept plan dated September 2nd, 2022). The new concept plan shown in the EAW has been revised with the newly adopted shoreland ordinance requirements. The shoreland ordinance created new setbacks and lot size that required some changes from the original concept. With the new lot requirements from the ordinary high water (OHW) from the unnamed lake modifications were made in the proposed road networks. The new breakdown on the new concept plan is as follows: 112 single family lots, 713 apartments, 6,250 sq.ft. of retail center, and 5,400 sq.ft. C-Store. With the changes to the road network and the reduction of the retail area it created more room

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			for the multiple family units. The revised apartment layout is in line with the City of Mankato's R-4 zoning code.
38	Linda Wilmes	The commercial density will also increase the level of traffic on this area. During the original meetings, it was unclear what the level of commercial would be. Traffic is also a concern to the west near the middle school.	The traffic study did account for the commercial uses on site and assigned all commercial traffic onto the area roadways as new traffic. This resulted in inflated site generated traffic as retail use traffic is made up of destination based traffic and pass-by traffic (traffic already on the road). While not directly studied, it is likely the new residences in the development will send students to the middle school.
39	Linda Wilmes	In terms of storm water runoff, there are concerns about how the increase in density of housing and commercial impact storm water runoff and other utilities.	The proposed development design and associated stormwater management plan will meet all local, state and federal regulations including, but not limited to, the MPCA NPDES Construction Stormwater permit, the City of Mankato MS4 Permit and the City of Mankato Grading Manual. These documents require the proposed development compared to the existing conditions to: not increase discharge rates, not increase total suspended sedimentes (TSS), not increase total phosphorous (TP) and where soils permit, retain 1.1 inches of runoff from all new and reconstructed impervious surfaces. The overwhelming majority of the proposed site, including impervious surfaces, will be routed through a stormwater BMP before leaving the property.
40	Linda Schrioch (Open House)	If there are any changes to these "proposed" or set plans, can you please notify us. Thanks for your time.	Comment noted. Any changes to the development plan will be provide to the adjoining owners.
41	Donald Sieberg & Marilyn Sieberg (Open House)	We need more outlets for driving anywhere in the area, [considering] the schools and all the homes already there. Too many homes.	County Highway No. 12 (586th Avenue) was designed to handle the traffic load of future developments along this corridor.
42	Jeff Schmidt (Open House)	Where will the water go into county ditch? Concerned about extra costs to us because of the water removal over future years.	The proposed design is only at the concept level at this date and final stormwater BMP routing is still to be determined, however it is anticipated that the overwhelming majority of the site will be routed through stormwater BMPs that will drain to the public water

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			wetland to the north of the proposed site. Proposed peak flows will be required to match or be reduced compared to existing peak flows.
43	Jeff Schmidt (Open House)	What about future roads to the east - would it go through our land?	Hoffman Road is planned to be extended to the East. Final details are still to be determined.
44	Ken Wilmes (Open House)	My concern is having too much water drain into the slough. Make sure we have enough storage pond capacity.	The proposed development design and associated stormwater management plan will meet all local, state and federal regulations including, but not limited to, the MPCA NPDES Construction Stormwater permit, the City of Mankato MS4 Permit and the City of Mankato Grading Manual. These documents require the proposed development compared to the existing conditions to: not increase discharge rates, not increase total suspended sediments (TSS), not increase total phosphorous (TP) and where soils permit, retain 1.1 inches of runoff from all new and reconstructed impervious surfaces. The overwhelming majority of the proposed site, including impervious surfaces, will be routed through a stormwater BMP before leaving the property.
45	Ken Wilmes (Open House)	I also have concerns about excess traffic on 211 Lane.	211th Lane and CSAH 12 were studied. Traffic will increase, but the traffic operational analysis reveals the intersection will operate at LOS A with short vehicle queues without and with the project.
46	Linda Wilmes (Open House)	Main concern is **water drainage** and traffic congestion.	Comment noted.
47	Denise Thompson (Open House)	We currently cannot get through the Prairie Wind round-about 2x/day in a timely manner. There are currently apartment complexes being built and many condo units, which will add to this problem, and more condos being proposed - all by Prairie Wind. There needs to be a second exit out of Prairie Wind prior to the Mesenbrink Project. I also think 211th should be developed for traffic. Thank you.	We are not in control of the area around Prairie Winds Drive. Hoffman Road and County Highway No. 12 were designed to handle the traffic loads.
48	Ken Wilmes	My question is in regard to drainage. Besides the water collection ponds will there be storm sewer drainage and where will they	The proposed design is only at the concept level at this date and final stormwater BMP routing is still to be determined, however it is anticipated that the overwhelming majority of the site will be

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		drain to? Do they drain to a storm sewer that is part of the Hoffman Road extension down to the Minnesota river?	routed through stormwater BMPs that will drain to the public water wetland to the north of the proposed site. Proposed peak flows will be required to match or be reduced compared to existing peak flows. Storm sewer will be routed throughout the site as necessary and will be contained in areas such as private property, public right-of-way (such as Hoffman Road), and in stormwater management areas.
49	Ken Wilmes	I still have questions and concerns about water run-off and drainage of the Mesenbrink property supposedly Bolton and Menk have engineered this but what is the plan? With all of the new roofs, driveways, parking lots, and streets that is a tremendous amount of water runoff. What are their calculations based on a 100-year rain event? A 10" rain event? If the ground is already saturated? What percent of runoff goes into the created ponds? What percent goes into storm sewers? Where do all of the storm sewers drain to? What percent natural runoff will go into the slough? Can this engineering data be provided to me?	The information of concern will be prepared prior to project approval and submitted to the City at which point it will become publicly available.
50	City of Mankato (Michael McCarty)	With respect to improvements at Hoffman Road and TH 22 the recommendation of the Corridor Study recommended a Roundabout by 2030. Recommendations should follow that report.	Acknowledged. The recommendation for 2030 is in the broader context of the TH 22 Corridor as a whole. The 2030 LOS calculation in the Corridor study show the intersection of TH 22 & Hoffman Rd operating at LOS C and all approaches at LOS D or better for both the AM and PM peak hours, which doesn't necessitate a change. The TH 22 Corridor Study does indicate that by 2045 the intersection could be revised to include a multi-lane roundabout, however, this improvement is not programmed at this time and per the report is only a suggestion, as evidenced by the following from that report, " Finally, the PNS can help screen alternative(s) for more detailed analysis in a future environmental document, if necessary. [...] and determine if further analysis (e.g., alternative development and evaluation) should continue."

IV. DECISION REGARDING NEED FOR ENVIRONMENTAL IMPACT STATEMENT

Minnesota Rule 4410.1700 provides that an environmental impact statement shall be ordered for projects that have the potential for significant environmental effects. In deciding whether a project has the potential for significant environmental effects, the following factors shall be considered:

A. Type, extent, and reversibility of environmental impacts

The City of Mankato finds that the analysis completed for the EAW is adequate to determine whether the project has the potential for significant environmental effects.

The EAW described the type and extent of impacts to the natural and built environment anticipated to result from the proposed project. This document provides any corrections, changes, and new information since the EAW was published. The proposed design for the project includes features to mitigate the identified impacts.

B. Cumulative potential effects of related or anticipated future projects

This topic was addressed throughout the EAW and in Item 19. Cumulative effects associated with the Proposed Project are essentially the effects of continued growth and development. This can have both positive and negative effects on the human and natural environment. The largest impact to this parcel is the loss of wildlife areas and an increase in impervious surfaces. Through responsible development and using best management practices, negative impacts can be minimized.

Future development within and near the Study Area is anticipated to generate more traffic, placing some additional pressure on the surrounding transportation systems. To account for this, continued transportation planning at the local and county levels is necessary to provide for the long-term development and anticipated growth in the City of Mankato.

Through the increase in traffic and impervious surfaces, and adding facilities with heating and cooling systems, there may be a minimal increase in greenhouse gas (GHG) emissions. It is unlikely this will grossly increase the regional impacts from climate change. Best management practices during the construction process, use of energy efficient building materials and appliances or other systems, and the addition of native landscape vegetation and tree species may help offset impacts from increased GHG emissions.

C. The extent to which the environmental effects are subject to mitigation by ongoing public regulatory authority

There are several Federal, State, and local permits required to ensure that specific environmental effects are mitigated. The mitigation of environmental impacts will be designed and implemented in coordination with regulatory agencies and will be subject to permitting

processes. Permits and approvals that have been or may be required prior to project construction include:

Government Agency	Type of Application/Permit	Status
State Agencies		
Minnesota Pollution Control Agency	National Pollutant Discharge Elimination System (NPDES) Construction Storm Water Permit	To be applied for
	Sanitary Sewer Extension Permit	To be applied for
Minnesota Department of Health	Watermain Extension Permit	To be applied for
Minnesota Department of Natural Resources	Water Appropriations Permit	To be applied for, if necessary
Local Agencies		
City of Mankato / Mankato Township	Annexation Petition	To be applied for
City of Mankato	Preliminary & Final Plat Application	To be applied for
	Planned Unit Development / Conditional Use Permit	To be applied for
	Residential Building Permit	To be applied for
	Grading/Excavating Permit	To be applied for
	MS4 Permit	To be applied for
	Wetland Mitigation Application	To be applied for

D. The extent to which the environmental effects can be anticipated and controlled as a result of other available environmental studies undertaken by public agencies or the project proposer, including other EISs

The City of Mankato finds:

1. The Proposed Project includes various measures to reduce adverse impacts to the environment and existing natural resources.
2. The Proposed Project is subject to City, County, State, and Federal requirements.
3. The Project Proposer will secure all necessary permits and will adhere to all requirements of the permits.
4. Considering the results of environmental review and permitting processes for similar projects, the City of Mankato finds that the environmental effects of the Proposed Project can be adequately anticipated, controlled, and mitigated.

V. CONCLUSIONS

1. All requirements for environmental review of the Proposed Project have been met.
2. The EAW and the permit development processes related to the project have generated information which is adequate to determine whether the project has the potential for significant environmental effects.
3. Areas where potential environmental effects have been identified will be addressed during the final design and site plan approvals of the project. Mitigation will be provided where impacts are expected to result from project construction, operation, or maintenance. Mitigation measures are incorporated into project design, and have been or will be coordinated with state and federal agencies during the permit process.
4. Based on the criteria in Minnesota Rules part 4410.1700, the Proposed Project does not have the potential for significant environmental effects.
5. An Environmental Impact Statement is not required for the proposed Mesenbrink Mixed-Use Development Project in Mankato, Minnesota.

For the City of Mankato

Mark Konz
Associate Director - Planning and Development Services
City of Mankato

5/16/23
Date

APPENDIX A – EAW PUBLICATION AND NOTIFICATION MATERIALS

EQB Notice of Availability

February 7, 2023

Mesenbrink Mixed-Use Development

Location: Mankato, Blue Earth County
Process: Environmental assessment worksheet (EAW)
Step: EAW available
End of comment period: March 9, 2023

Project description: Mesenbrink Construction proposes the construction of a new mixed-use development consisting of retail space, apartment units and single family residential, located on approximately 105 acres in Blue Earth County (to be annexed into the City of Mankato).

Link to public documents: Mesenbrink Mixed-Use Development EAW
Location of public documents: Blue Earth County Library, 100 East Main Street, Mankato, MN 56001

Responsible governmental unit and contact: City of Mankato, Mark Konz, 507-387-8611

EAW Distribution List

EQB Distribution List for City of Mankato - Mesenbrink EAW		
Agency	**Distribution**	**Email Submission**
Environmental Quality Board	1 copy by email	*Please use the EQB Monitor Submission Form
Dept of Agriculture	1 copy by email	stephan.roos@state.mn.us
Dept of Commerce	1 copy by email	raymond.kirsch@state.mn.us
Dept of Health	1 copy by email	health.review@state.mn.us
Dept of Natural Resources	1 copy by email	jill.townley@state.mn.us
Pollution Control Agency	1 copy by email	karen.kromar@state.mn.us
Board of Soil & Water Resources	1 copy by email	melissa.king@state.mn.us
Dept of Transportation	1 copy by email	katherine.lind@state.mn.us
State Archaeologist	1 copy by email	mn.osa@state.mn.us
Indian Affairs Council	1 copy by email	melissa.cerda@state.mn.us
State Historic Preservation Office	1 copy by email	ENReviewSHPO@state.mn.us
Environmental Conservation Library	1 copy by email	govdoc@hclib.org
US Fish & Wildlife Service	1 copy by email	Shauna_Marquardt@fws.gov
US Army Corps of Engineers (REQUIRES COUNTY NAME IN SUBJECT LINE OF EMAIL)	1 copy by email	usace_requests_mn@usace.army.mil
US Environmental Protection Agency	1 copy by email	westlake.kenneth@epa.gov
Regional Development Commission	1 copy by email	nicole@rndc.org
Regional Development Library	1 paper copy	N/A
City of Mankato	1 copy by email	mkonz@mankatomn.gov; pvogel@mankatomn.gov
Bolton & Menk	1 copy by email	Farveh.Makhssous@bolton-menk.com; Nathan.Myhra@bolton-menk.com; jason.femrite@bolton-menk.com
Proposer and/or Other Interested Parties	1 copy by email	jemmbc@mesenbrinkconstruction.com; jdb@mesenbrinkconstruction.com

EAW Distribution Letter

Lucas Bulger

From:	Lucas Bulger
Sent:	Monday, February 6, 2023 2:28 PM
To:	stephan.roos@state.mn.us; raymond.kirsch@state.mn.us; health.review@state.mn.us; jill.townley@state.mn.us; karen.kromar@state.mn.us; King, Melissa (BWSR); katherine.lind@state.mn.us; mn.osa@state.mn.us; melissa.cerda@state.mn.us; ENVReviewSHPO@state.mn.us; govdoc@hclib.org; Marquardt, Shauna R; usace_requests_mn@usace.army.mil; westlake.kenneth@epa.gov; nicole@rndc.org
Cc:	Farveh Makhssous; Nate Myhra; Jason Femrite; Konz, Mark; Vogel, Paul; jemmbc@mesenbrinkconstruction.com; jdb@mesenbrinkconstruction.com
Subject:	City of Mankato - Mesenbrink Mixed-Use Development EAW (Blue Earth County)
Categories:	Filed by Newforma

Dear Interested Party,

This message is being sent on behalf of the City of Mankato.

The City of Mankato has completed an Environmental Assessment Worksheet (EAW) for the proposed Mesenbrink Mixed-Use Development project. The proposed project would construct a new mixed-use development consisting of retail space, apartment units and single-family residential, located on approximately 105 acres in Blue Earth County (to be annexed into the City of Mankato).

The public comment period for this EAW will begin on February 7, 2023, and will close on March 9, 2023, at 4:30 PM.

Comments should be emailed to Mark Konz, Associate Director - Planning and Development Services, City of Mankato, at mkonz@mankatomn.gov. Please do not hesitate to contact Mark (507-387-8611) for more information.

The EAW Document and Appendices are available for review at the following link:
https://www.mankatomn.gov/home/showpublisheddocument/12958/638107513590970000

Most sincerely,

Lucas Bulger
he/him/his
Environmental Planner
Bolton & Menk, Inc.
111 Washington Avenue South, Suite 650
Minneapolis, MN 55401
Phone: (612) 270-0928
Bolton-Menk.com

Media Release Provided to The Mankato Free Press

February 6, 2023

The Free Press THE LAND
MEDIA
P.O. Box 3287, Mankato, MN 56002
www.mankatofreepress.com phone: (507) 344-6314, fax: (507) 625-1149

Affidavit of Publication

STATE OF MINNESOTA, COUNTY OF BLUE EARTH, ss.

Steve Jameson, being duly sworn, on oath states as follows:
1. I am the publisher of The Free Press, or the publisher's designated agent. I have personal knowledge of the facts stated in this Affidavit, which is made pursuant to Minnesota Statutes §331A.07.
2. The newspaper has complied with all of the requirements to constitute a qualified newspaper under Minnesota law, including those requirements found in Minnesota Statutes §331A.02.
3. The dates of the month and the year and day of the week upon which the public notice attached/copied below was published in the newspaper are as follows:
The printed notice which is attached was cut from the columns of said newspaper, and was printed and published the following dates: 02/06/23, and printed below is a copy of the lower case alphabet from A to Z, both inclusive, which is hereby acknowledged as being the size and kind of type used in the composition and publication of the notice:
abcdefghijklmnopqrstuvwxyz

4. The Publisher's lowest classified rate paid by commercial users for comparable space, as determined pursuant to §331A.06, is as follows: 64.50.
5. Pursuant to Minnesota Statutes §580.033 relating to the publication of mortgage foreclosure notice: The newspaper's known office is located in Blue Earth County. The newspaper complies with the conditions described in §580.033, subd. 1, clause (1) or (2). If the newspaper's known office of issue is located in a county adjoining the county where the mortgaged premises or some part of the mortgaged premises described in the notice are located, a substantial portion of the newspaper's circulation is in the latter county.

FURTHER YOUR AFFIANT SAITH NOT.

By: _____
Steve Jameson, Publisher

Sworn to and subscribed before me, this day
02/06/2023

_____
Notary Public

SHARON L TOLAND
NOTARY PUBLIC - MINNESOTA
MY COMMISSION EXPIRES 01/31/26

Public Notice
February 6, 2023
NOTICE OF A COMMENT PERIOD FOR AN ENVIRONMENT ASSESSMENT WORKSHEET

The City of Mankato has received a development proposal, known as Mesenbrink Mixed-Use Development Project, located on an approximately 105-acre parcel (to be annexed into the City of Mankato) in Blue Earth County, Minnesota. The proposed project would construct a new mixed-use development consisting of retail space, apartment units, and single-family residential units.

As part of the planning and design phase of project development, an Environmental Assessment Worksheet (EAW) has been prepared and will be available for public and agency review beginning on February 7, 2023. The EAW documents the purpose and need of the project along with the anticipated social, economic, and environmental effects. An electronic copy of the EAW is available for review at the City's website at: https://www.mankatomn.gov/home/showpublisheddocument/12958/638107513590968202.

The deadline for submitting comments is Thursday, March 9, 2023. All comments should be submitted in a written format to: Mark Konz, Associate Director - Planning and Development Services, City of Mankato, 10 Civic Center Plaza, PO Box 3368, Mankato, MN 56002-3368, or via e-mail at: mkonz@mankatomn.gov

To request this document in an alternative format, please contact the Affirmative Action Office at 651-366-4718 or call 1-800-657-3774 (Greater Minnesota). For Minnesota Relay, call 711 or 1-800-627-3529. You may also send an e-mail to ADArequest.dot@state.mn.us. (Please make your request at least one week in advance).

APPENDIX B – COMMENTS RECEIVED

BLUE EARTH COUNTY
Effectively and Efficiently Delivering Essential Services
www.blueearthcountymn.gov

Historic Courthouse
204 S. Fifth St.
PO Box 168
Mankato, MN 56002
Administration
TEL: 507-304-4150
FAX: 507-304-4344
Human Resources
TEL: 507-304-4150
FAX: 507-304-4344
Extension
TEL: 507-304-4325
FAX: 507-304-4059
Facilities Management
TEL: 507-304-4249

Government Center
410 S. Fifth St.
Mankato, MN 56001
Human Services
PO Box 3526
TEL: 507-304-4319
FAX: 507-304-4379
Property and Environmental Resources
PO Box 3566
TEL: 507-304-4251
FAX: 507-304-4431
License Center
PO Box 3524
TEL: 507-304-4340
FAX: 507-304-4396
Veterans Services
PO Box 168
TEL: 507-304-4246
FAX: 507-304-4225
Finance
PO Box 3524
TEL: 507-304-4182
FAX: 507-304-4077
Information Technology
PO Box 168
TEL: 507-304-4357
FAX: 507-304-4355

Public Works
35 Map Dr.
PO Box 3083
Mankato, MN 56002
TEL: 507-304-4025
FAX: 507-304-4049

Justice Center
401 Carver Road
Mankato, MN 56001
Sheriff's Office
PO Box 228
TEL: 507-304-4800
FAX: 507-304-4818
County Attorney
PO Box 3129
TEL: 507-304-4600
FAX: 507-304-4620
Probation
PO Box 3245
TEL: 507-304-4750
FAX: 507-304-4710

Library
100 E. Main St.
Mankato, MN 56001
TEL: 507-304-4001
FAX: 507-304-4009
www.beclibrary.org
TDD: 507-304-4399

March 9, 2023

Mark Konz
Associate Director – Planning and Development Services
City of Mankato
10 Civic Center Plaza
Mankato, MN 56001

Sent via email: mkonz@mankatomn.gov

RE: Environmental Assessment Worksheet for the "Mesenbrink Mixed-Use Development, Mankato, MN".

Dear Mark,

The purpose of this letter is to provide written comments from the Property and Environmental Resources Department on the Environmental Assessment Worksheet (EAW) for the Mesenbrink Mixed-Use Development project in Mankato. Our department reviewed the EAW as it relates to our department's general oversight and responsibilities. We found areas where correction or clarification is necessary or recommended. These areas are related to permitting and approvals, land use, and water resources.

We appreciate the opportunity to review the proposed project and have attached written comments. Should you have any follow up questions, please contact me and I can direct your question(s) to the appropriate staff member.

Sincerely,

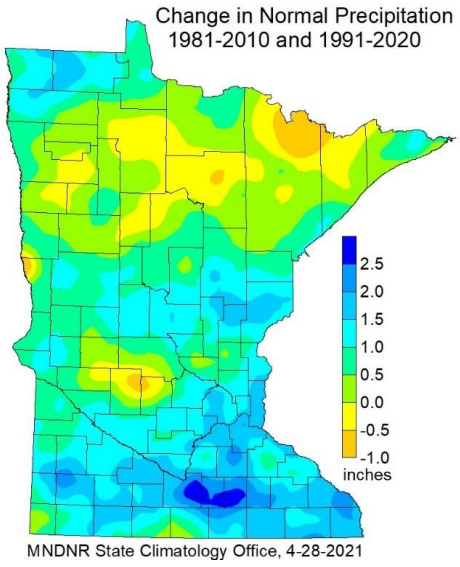
Michael Stalberger
Blue Earth County
Property and Environmental Resources Director

Enclosure

CC: Bob Meyer, County Administrator

EAW Pages 4-6
7. Climate Adaptation and Resilience

Comment: As mentioned in the EAW, annual precipitation has increased in the Le Sueur River Watershed. The proposed development is in an area of the State with the highest increase in annual precipitation in the recent 30-year time frame as shown in the graphic below. While annual precipitation has increased in Southern Minnesota, the frequency of large rain events has also increased. According to the State Climatology Office, "Heavy rains are now more common in Minnesota and more intense than at any time on record. Long-term observation sites have measured dramatic increases, including a 20% increase in the number of one-inch and a 65% increase in the number of three-inch rains. The size of the heaviest annual rainfall also has increased by 13%." The increase in the number and size of heavy rain events are likely more important in context to the impact of the proposed development on water resources and should be discussed in more detail in the EAW or included in future permitting processes for the site.



EAW Page 8
9. Permits and Approvals Required

Comment: This section does not list the required approvals for wetland replacement and sequencing.

EAW Pages 9-10
10. Land Use – Local Plans

Comment: This section does not include references to the Greater East Mankato Infill Service District Alternative Urban Areawide (AUAR) Review & Mitigation Plan (the original document or 2016 update), or the Blue Earth County Water Management Plan. Both of those documents have specific references

for the project and project area that should be discussed in EAW review process. While the EAW mentions the Blue Earth County Land Use Plan, there are additional sections of the Blue Earth County Land Use Plan that contain useful references also.

The planning documents can be found here:

> Final Alternative Urban Areawide Review: https://content.mankatomn.gov/files/9293-Final-AUAR-and-Mitigation-Plan.pdf
>
> Blue Earth County Water Management Plan: https://www.blueearthcountymn.gov/WaterPlan
>
> Blue Earth County Land Use Plan: https://www.blueearthcountymn.gov/LandUsePlan

EAW Page 11
10. Land Use b. Project Compatibility

Comment: The EAW States: "The project will also include the construction of a park and five small stormwater ponds." The proposed improvement map in **Figure 3** does not appear to include the park.

The AUAR 2016 Update has several references to the Blue Earth County Greenprint. It states: "The Blue Earth County Greenprint Program is an initiative that will help preserve natural resources throughout Blue Earth County and Mankato. It is intended to bring natural resources to the forefront for planning and decision making. The County's Greenprint plan has identified 'Greenprint' areas (See Exhibit H-Existing Conditions Map) which are defined as existing natural connections in the landscape that facilitate movement of plants and animals between larger patches of habitat."

Starting on Page 78 of the Blue Earth County Water Management Plan, the Greenprint Priority Areas are discussed. The Greenprint map on Page 79 of the Water Management Plan includes the public water wetland and connected basin to the west as a Greenprint Corridor and the area adjacent to the basins as a Planned Greenprint Corridor Connection.

The proposed development appears to meet the minimum setbacks for structures but does not appear to consider the mitigation concepts that are discussed on Page 20 of the 2016 AUAR update or the County Greenprint. Page 11 of the Blue Earth County Water Management Plan states:

> "POLICY STRATEGY: ENVIRONMENTAL REVIEW.
> Policy: Aquatic and natural resource priority areas in the Greenprint and the Blue Earth County Water Management Plan should be included in environmental review documents, such as Environmental Assessment Worksheet (EAW), Environmental Impact Statement (EIS) and Alternative Urban Area Review (AUAR) to assess compatibility of proposed projects with local government plans. (Reference: Environmental Review, Minnesota Rules, part 4410.1200 subpart H. and 4410.2100)"

EAW Page 12
11. Geology, Soils, & Topography/Landforms

Comment: The geology section references the 1991 *Blue Earth County Geological Atlas*. Blue Earth County has a new geologic atlas (C-26, Part A) which was updated in 2011. Part B of the Blue Earth

County Geologic Atlas was updated in 2016. The Geologic Atlas Part A, along with the Minnesota Well Index, document that wells finished in the glacial drift portion of the geology close to this site range from 208 feet to 234 feet in depth. There is a gas dome well boring just southwest of this Study Area which was drilled to 605 feet. Unique well record # 463783 just east of the site is finished in the Prairie Du Chien & Jordan Sandstone bedrock units. This is contradictory to the current EAW report which claims none of the local nearby wells reach the bedrock.

The soils & topography section includes a NRCS Soil Classification chart. This chart lists the wind erodibility number but does not address the site soil limitations for residential and commercial buildings. The site contains wet / heavy soils which are not susceptible to wind erosion. These soils will likely require soil correction and drainage tiles to accommodate the projected development. This should be discussed in this section. The NRCS-Web Soil Survey limitations for Small Commercial Buildings for the site are included in Attachment 1 and the limitations for Dwellings with Basements are included in Attachment 2.

EAW Page 15
12. Water Resources a. i. Surface Water

Comment: In the bulleted list, the EAW states Wetland Basins 2-10, Basin 12, and Basin 15 are seasonally flooded basins located along the western edge of the property. The wetland basins are dispersed throughout the proposed project site with few basins located along the western edge of the property. The information describing the wetland locations is inaccurate. This section should be updated to reflect locations of the basins being more than just on the western edge of the property as shown in the map in Figure 5 of the Wetland Delineation Report (Page 146 of the EAW PDF).

EAW Page 15
12. Water Resources a. ii. Ground Water

Comment: This section does not include the requirements of including the well logs identified in **"Figure 9".** This information is available through the Minnesota Well Index. **Figure 9** shows that the nearby wells are finished in the drift (QBAA), Prairie Du Chien Limestone (OPCJ), & multiple aquifers (MTPL). The current EAW aquifer description only discusses the Prairie Du Chien aquifer. The EAW description of depth to groundwater in the Study Area is very generic. It would be beneficial to list the depth to groundwater for each soil type. The EAW also mis-states that the proposed project is not within a DWSMA. It lies on the eastern edge of the City of Mankato's Surface Water DWSMA for their Ranney collector wells.

EAW Page 17
12. Water Resources b. ii. Stormwater Quantity and Quality

Comment: The Revised Environmental Assessment Worksheet Guidance from January 2022 have several areas that should be discussed in the EAW. As a result of the loss of existing water storage on the site by the proposed filling of existing wetlands and other depressions on the site, the increases in rainfall and

frequency of large rain events are even more important. The revised EAW standards include important guidance on this topic. Some areas from the guidance are listed below:

> *"Discuss the effects of the cumulative increase in impervious surfaces in the immediate watershed of the project location and its effect on downstream waterbodies within the project watershed along with efforts to mitigate these effects. Examples of potential stormwater impacts may include increases in receiving water flows and base flow, increase in downstream flood risk, channel erosion, thermal changes to trout streams and/or an increase or change in the generation of pollutants in runoff."*
>
> *"Discuss how additional stormwater flows resulting from more frequent and intense rainfall, increases in runoff from winter snowmelts, and the impacts of warmer temperatures may intensify the effects on water quality and quantity."*
>
> *"Climate change trends toward more frequent and intense extreme precipitation, riverine flooding, localized flash flooding at streams, stormwater management facilities and in upland areas lacking overflow and conveyance capacity."*
>
> *"Increased frequency and intensity of freeze/thaw cycles due to winter warming increases deicing chemical, salt and sand application, eventually being carried by runoff to downstream water bodies if unmanaged."*
>
> *"Stormwater management features become overwhelmed and have reduced effectiveness for controlling the rate of runoff or pollutant capture. Increased sediment and contaminants enter natural waterbodies."*

EAW Page 18
12. Water Resources b. ii. Runoff Routes

Comment: The EAW States that "The Proposed Project would maintain the existing conditions characteristics and patterns with the mall collected runoff in the property discharging to the same unnamed public water wetland to the north."

Figure 11 in the "Existing Drainage Patterns" does not accurately depict the existing drainage patterns on the site and appears to be based on generalized watershed boundaries. As shown on the map in Attachment 3, currently just over 29.1 acres on the Mesenbrink property drain away from the public water wetland (7-71W). Over 20-acres of that area are proposed to be redirected to the north towards the public water wetland. The runoff statements should be revised, and the modelling related to stormwater should be based on more accurate base information for existing conditions.

Comment: Based on the proposed development plan included in the EAW it appears that existing conditions on the site will be changed. Review of the development plan shows that the wetlands that are currently on the site are to be removed and the storage capacity that these basins retained will be lost and contribute to quicker bounce of the unnamed public water wetland to the north. Quicker bounce of the unnamed wetland to the north and a higher water level than the historical average has already been discussed based on impacts from other projects in the surrounding area. On May 11, 2022, Blue Earth County Property and Environmental Resources staff met with City of Mankato staff,

Minnesota Department of Natural Resources Area Hydrologist, and a concerned nearby landowner to discuss the issues surrounding the unnamed public water basin water level and quicker bounce after storm events.

EAW Page 18
12. Water Resources b. ii. Runoff Routes

Comment: The EAW states: "For areas draining directly to the unnamed public water wetland, converting what is row-crop agriculture today to turf will reduce pollutant loads including total suspended solids (TSS)."

There are less than 10 acres of cropland that drain directly to the unnamed public water wetland. As the EAW mentions previously, the site is very flat. Currently, there is not significant concentrated surface water flow from the cropland on this property draining directly to the unnamed public water wetland. Terrain models like stream power index show limited or low values of concentrated water flow from the cropland portion of this parcel due in part to the fields being generally flat.

The statement about "converting what is row-crop today to turf will reduce pollutant loads" is also not consistent with the AUAR that was prepared for this area. The AUAR sates that there will most likely be an increase in phosphates and other substances and that there likely could be impacts to wetlands from urban runoff. The EAW should describe the basis for the statement regarding the reduction in pollutant loads and why the information in the AUAR is contradictory.

The original AUAR and 2016 update for this area state:

> *"Post-development site runoff will be typical of urban and mixed-use developments. There will most likely be an increase in phosphates and other substances typically associated with urban runoff. The quantity of runoff will most likely increase because of the addition of impervious surface area such as the construction of pavement, buildings and parking lot area. The existing wetlands on the site may be a concern with an increase in the amount of urban runoff. In general, urban runoff impacts to wetlands include: 1) increases in wetland bounce, 2) decrease in wetland plant and animal species diversity, 3) long-term alterations or destruction of wetland type and function, 4) increased peak discharge rates, 5) reduction in groundwater infiltration, and/or 6) secondary wetland impacts resulting from watershed alterations."*

The Blue Earth County Water Management Plan also discusses the impact of development on wetlands. On Page 94 of the Blue Earth County Water Management Plan, wetlands in urban watersheds are discussed.

> *"Urban development trends generally are detrimental to wetlands. Many wetlands are lost in the process and those that remain are degraded by the high intensity of uses in the urbanized surrounding areas. For example, the almost continuous concrete, asphalt, and rooftops that harden the landscape result in increased levels of stormwater runoff."*
>
> *"The wetlands needed in some parts of urban watersheds end up being planned and implemented to perform functions such as flow attenuation, water quality improvement, and floodwater retention at the expense of overall wetland quality. These working wetlands, because*

> *of the constant stress they experience, may be mostly or completely comprised of an invasive species plant community and have poor water quality, high rates of sedimentation, and other indications of degradation. However, their role is not to be pristine examples of wetlands; instead, their mission is to perform their designed functions in a way that maximizes the overall good for the watershed."*

Comment: The AUAR for this area describes alternative stormwater treatment concepts and exhibit N-2 shows filtration (Hoffman Filtration) along the extension of Hoffman Road. The EAW does not address the alternative stormwater concepts outlined in the AUAR. On Page 34, the 2016 AUAR update states:

> *"Due to the prevalence of relatively impermeable clay soils and high water table as discussed previously, traditional stormwater detention ponds will play a vital role in both stormwater treatment and rate control. The ponds will be designed to comply with City of Mankato standards and the design guidelines as outlined in the 2005 Minnesota Stormwater Manual (Updated 2008). Typical design considerations will include side slopes that meet site safety and maintenance requirements, outlets that provide skimming as required by the NPDES requirements, and rate control to reduce peak flows to the 2, 10, 100 and back-to-back 10 year design storms. Based on known erosion concerns in the downstream channel, preliminary sizing has been performed to reduce discharge rates (and therefore velocity) to below the existing rates.*
>
> *"Several portions of the Project have very flat terrain, and will be a challenge to design stormwater facilities. To adequately provide drainage for these areas as well as reduce costs, it is proposed that long, linear ponds be constructed. This can be noted in Exhibit N-2-Alternative Stormwater Treatment Concepts in the northwest portion of the study area."*

There have been erosion issues in the stream channel downstream of this site in the City of Mankato and near the outlet of Wilson Creek into the Le Sueur River. The AUAR for this area states:

> *"Based on known erosion concerns in the downstream channel, preliminary sizing has been performed to reduce discharge rates (and therefore velocity) to below the existing rates."*

In the Near Channel Erosion section of the Blue Earth County Water Management Plan on Page 205, the Plan states:

> *Wilson Creek Watershed*
> *"The Wilson Creek watershed is located in the Le Sueur River watershed. There are significant erosion problems in the meandering stream channel/ravine locally-named Wilson Creek. The watershed is drained by extensive urban stormwater systems and a county ditch. Urban land use and soil types with low infiltration capability in the Wilson Creek watershed are a challenge for managing hydrology to reduce erosion in this watershed."*
>
> *STRATEGY: STRUCTURAL AND NATURAL RESOURCE PROTECTION:*
>
> *Action: Protect and restore wetlands and increase water storage in the County Ditch 12 watershed in areas identified in the Blue Earth County Water Management Plan, City of Mankato Park and Open Space Plan or City of Mankato Wilson Creek Stormwater Master plan.*

Action: Construct channel and slope stabilization practices in the Wilson Creek ravine as identified in the City of Mankato Wilson Creek Stormwater Master Plan.

In the Drainage Ditches – 103E Drainage Systems section of the Blue Earth County Water Management Plan on Page 206 the Plan describes watershed goals applicable to drainage systems, including the following:

- Reduce the magnitude and duration of peak flows with wetland restoration and water storage
- Reduce erosion and sedimentation in the drainage system
- Reduce nitrogen in downstream waters
- Reduce phosphorus in lakes and rivers

Additionally, in this section of the Blue Earth County Water Management Plan on Page 213, the Plan describes the issues and potential projects in County Ditch 12 as "Increase Water Storage, Downstream Erosion in CD outlet, and the Wilson Creek Ravine."

Since the AUAR and the Blue Earth County Water Management Plan document the importance of stormwater storage, existing downstream erosion, the challenges for stormwater management due to the wet soils on the site, and the increases in the frequency of large storm events, the EAW process and permitting process should address this issue in more detail.

In addition, the AUAR includes several statements about developers maintaining pre-development runoff rates. The calculations of these runoff rates should include the quantity of water that is currently stored in the wetland basins and other natural depressions on the site. Significant natural water storage currently exists on the site and many of these storage areas are planned to be converted to impervious surfaces.

EAW Page 20
12. Water Resources b. iv. Permitting and Sequencing Information

Comment: The EAW States: "The remaining eleven wetlands are only under the jurisdiction of the WCA. Historically, these wetlands have been in crop rotation and have been heavily degraded by the removal of wetland hydrology and hydrophytic plant communities. Due to the degradation that has occurred, these wetlands are eligible for sequencing flexibility. MN Rule 8420.0520, Subpart 7a.A.1, allows for flexibility in sequencing if the wetlands to be impacted have been degraded to the point where replacement of it would result in a certain gain in functional and public value."

As the Minnesota Rule states, "flexibility in application in application of the sequencing steps may be requested by the applicant and allowed at the discretion of the local government unit, subject to the conditions in item B, as determined by the local government unit, if…". It should be noted that the determination on sequencing flexibility has not been made and that Minnesota Rules Chapter 8420 includes items Subpart 7A 2-4 and Subpart 7B that also need to be taken into consideration when the determination on sequencing flexibility is made.

The statement regarding the wetlands being heavily degraded should be expanded upon and reviewed more thoroughly in the EAW or the permitting process. These shallow basins serve an important

function locally for stormwater storage or flood attenuation. Since the basins are farmed, they don't have established unique vegetation, but they do have unique features like crayfish burrows.

In addition, the AUAR for this area contains the following references to sequencing and avoiding wetlands that should also be considered before sequencing flexibility is allowed:

> *Page 25 "Due to the lack of current development in the area, it is expected that prudent and feasible alternatives exist, and that wetland impacts can be avoided. Some possible circumstances occurring under sequencing flexibility outlines under WCA Ch. 8420.0520 under which impacts to wetlands can genuinely be considered anything but avoidable may include the following:"*
>
> *Page 26. "All sequencing requirements must be satisfied prior to the City's approval of any wetland impacts both direct and indirect have been considered. Proper sequencing implies that all attempts to avoid wetland impacts, both direct and indirect, have been considered. If avoidance cannot be accomplished, then the wetland impacts must be minimized by limiting activities within the wetland to the maximum feasible extent."*

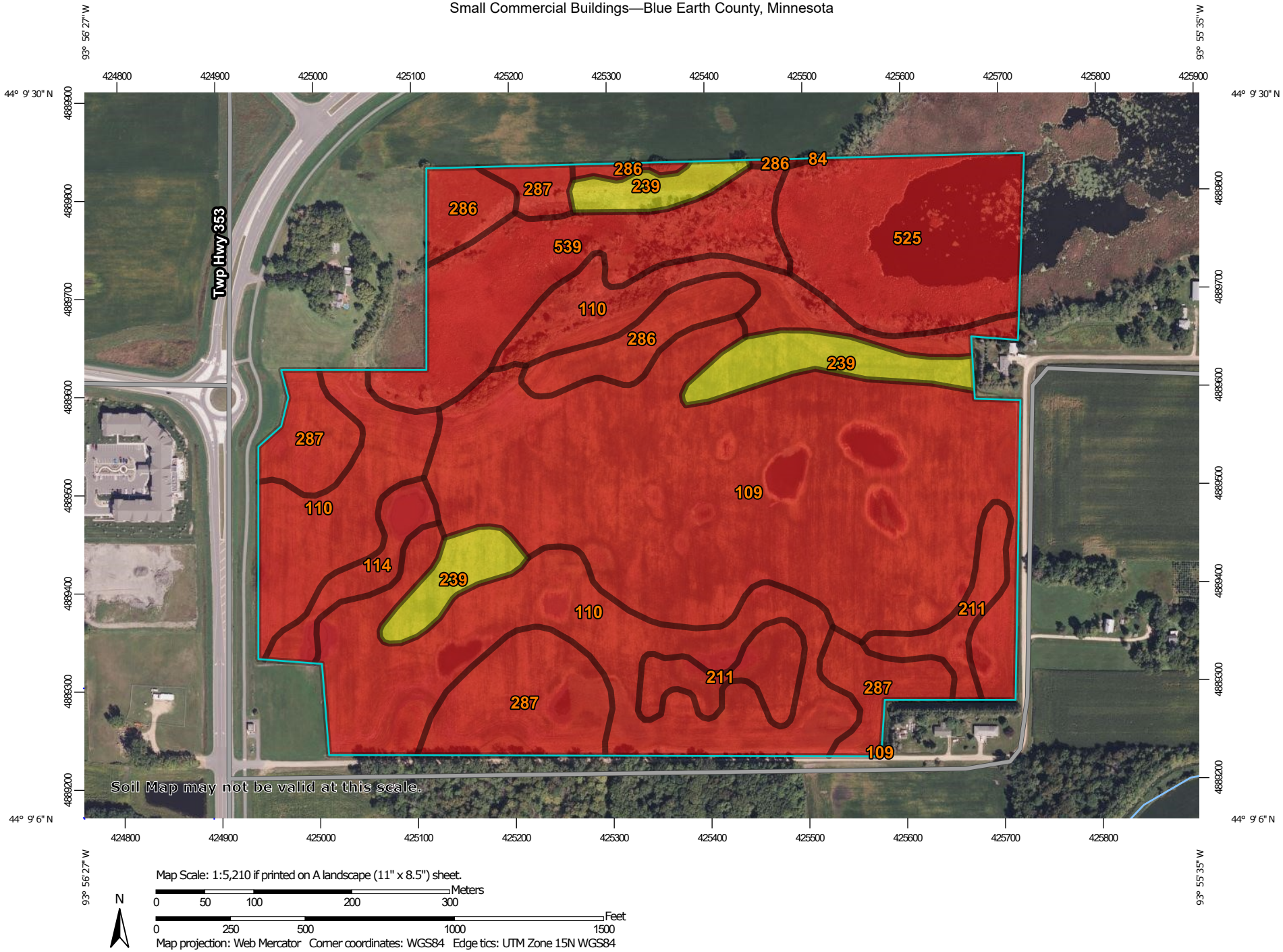
EAW Page 20
13. Contamination/Hazardous Materials/Wastes

Comment: There is a pipeline that bisects the site in a north/south direction. This pipeline is discussed in the AUAR on Page 14 and the map on Page 246 shows the pipeline and easement. It appears that the location of the pipeline easement may have been considered in the proposed development, but this should be discussed.

EAW – Appendices
Appendix A: Figures

Comment: Figure 4 does not accurately reflect the existing land cover. There are more wetland basins not shown on the map (see Appendix B Figure 5 from the Wetland Delineation Report) and the lawns/landscaping strips on the east and south edges are currently cropland.

Comment: Figure 9 shows 50-foot bedrock contour elevations that are labeled depth to bedrock. The map does not match the depth to bedrock map from the Blue Earth County Geologic Atlas Part A which has the depth to bedrock at 201 to 250 feet below the ground surface for this site. The map in Figure 9 shows Depth to Bedrock from 750 feet to 900 feet on this site. It should be clarified if this map is showing bedrock elevations or depth to bedrock. The most current data and maps for the Blue Earth County Geologic Atlas can be downloaded with this link:
https://conservancy.umn.edu/handle/11299/116097



Map Scale: 1:5,210 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 250 500 1000 1500

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 15N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

Very limited

Somewhat limited

Not limited

Not rated or not available

Soil Rating Lines

Very limited

Somewhat limited

Not limited

Not rated or not available

Soil Rating Points

Very limited

Somewhat limited

Not limited

Not rated or not available

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Blue Earth County, Minnesota
Survey Area Data: Version 20, Sep 6, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 30, 2020—Oct 8, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Small Commercial Buildings

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
84	Brownton silty clay loam, 0 to 2 percent slopes	Very limited	Brownton (90%)	Depth to saturated zone (1.00)	0.0	0.0%
				Shrink-swell (1.00)		
			Okoboji (10%)	Ponding (1.00)		
				Depth to saturated zone (1.00)		
				Shrink-swell (0.96)		
109	Cordova clay loam, 0 to 2 percent slopes	Very limited	Cordova (85%)	Depth to saturated zone (1.00)	32.8	31.8%
				Shrink-swell (0.27)		
			Glencoe (5%)	Ponding (1.00)		
				Depth to saturated zone (1.00)		
				Shrink-swell (0.02)		
110	Marna silty clay loam, 0 to 2 percent slopes	Very limited	Marna (85%)	Depth to saturated zone (1.00)	25.0	24.2%
				Shrink-swell (1.00)		
			Okoboji (7%)	Ponding (1.00)		
				Depth to saturated zone (1.00)		
				Shrink-swell (0.96)		
			Brownton (3%)	Depth to saturated zone (1.00)		
				Shrink-swell (1.00)		
114	Glencoe silty clay loam, 0 to 1 percent slopes	Very limited	Glencoe (80%)	Ponding (1.00)	2.0	1.9%
				Depth to saturated zone (1.00)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				Shrink-swell (0.02)		
			Okoboji (10%)	Ponding (1.00)		
				Depth to saturated zone (1.00)		
				Shrink-swell (0.96)		
			Webster (5%)	Depth to saturated zone (1.00)		
				Shrink-swell (0.26)		
			Canisteo (5%)	Depth to saturated zone (1.00)		
211	Lura silty clay, 0 to 1 percent slopes	Very limited	Lura (85%)	Ponding (1.00)	4.2	4.0%
				Depth to saturated zone (1.00)		
				Shrink-swell (1.00)		
			Knoke (10%)	Ponding (1.00)		
				Depth to saturated zone (1.00)		
				Shrink-swell (0.32)		
			Waldorf (5%)	Depth to saturated zone (1.00)		
				Shrink-swell (1.00)		
239	Le Sueur loam, 1 to 3 percent slopes	Somewhat limited	Le Sueur (80%)	Depth to saturated zone (0.99)	6.1	5.9%
				Shrink-swell (0.13)		
			Lester (5%)	Shrink-swell (0.05)		
				Slope (0.00)		
286	Shorewood silty clay loam, 1 to 6 percent slopes	Very limited	Shorewood (90%)	Shrink-swell (1.00)	4.6	4.5%
				Depth to saturated zone (0.99)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
287	Minnetonka silty clay loam	Very limited	Minnetonka (90%)	Depth to saturated zone (1.00)	9.8	9.5%
				Shrink-swell (1.00)		
525	Muskego soils, 0 to 1 percent slopes	Very limited	Muskego, drained (45%)	Ponding (1.00)	10.0	9.7%
				Subsidence (1.00)		
				Depth to saturated zone (1.00)		
				Organic matter content (1.00)		
			Muskego, ponded (40%)	Ponding (1.00)		
				Subsidence (1.00)		
				Depth to saturated zone (1.00)		
				Organic matter content (1.00)		
			Klossner, drained (8%)	Ponding (1.00)		
				Subsidence (1.00)		
				Depth to saturated zone (1.00)		
				Organic matter content (1.00)		
			Glencoe (4%)	Ponding (1.00)		
				Depth to saturated zone (1.00)		
				Shrink-swell (0.02)		
			Canisteo (3%)	Depth to saturated zone (1.00)		
539	Klossner muck, lake plain, depressional, 0 to 1 percent slopes	Very limited	Klossner, drained (85%)	Ponding (1.00)	8.7	8.4%
				Subsidence (1.00)		
				Depth to saturated zone (1.00)		
				Shrink-swell (0.04)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
			Lura (10%)	Ponding (1.00)		
				Depth to saturated zone (1.00)		
				Shrink-swell (1.00)		
			Brownton (5%)	Depth to saturated zone (1.00)		
				Shrink-swell (1.00)		
Totals for Area of Interest					**103.2**	**100.0%**

Rating	Acres in AOI	Percent of AOI
Very limited	97.1	94.1%
Somewhat limited	6.1	5.9%
Totals for Area of Interest	**103.2**	**100.0%**

Description

Small commercial buildings are structures that are less than three stories high and do not have basements. The foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. The ratings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility (which is inferred from the Unified classification of the soil). The properties that affect the ease and amount of excavation include flooding, depth to a water table, ponding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the specified use. "Not limited" indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. "Somewhat limited" indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. "Very limited" indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

The map unit components listed for each map unit in the accompanying Summary by Map Unit table in Web Soil Survey or the Aggregation Report in Soil Data Viewer are determined by the aggregation method chosen. An aggregated rating class is shown for each map unit. The components listed for each map unit are only those that have the same rating class as listed for the map unit. The percent composition of each component in a particular map unit is presented to help the user better understand the percentage of each map unit that has the rating presented.

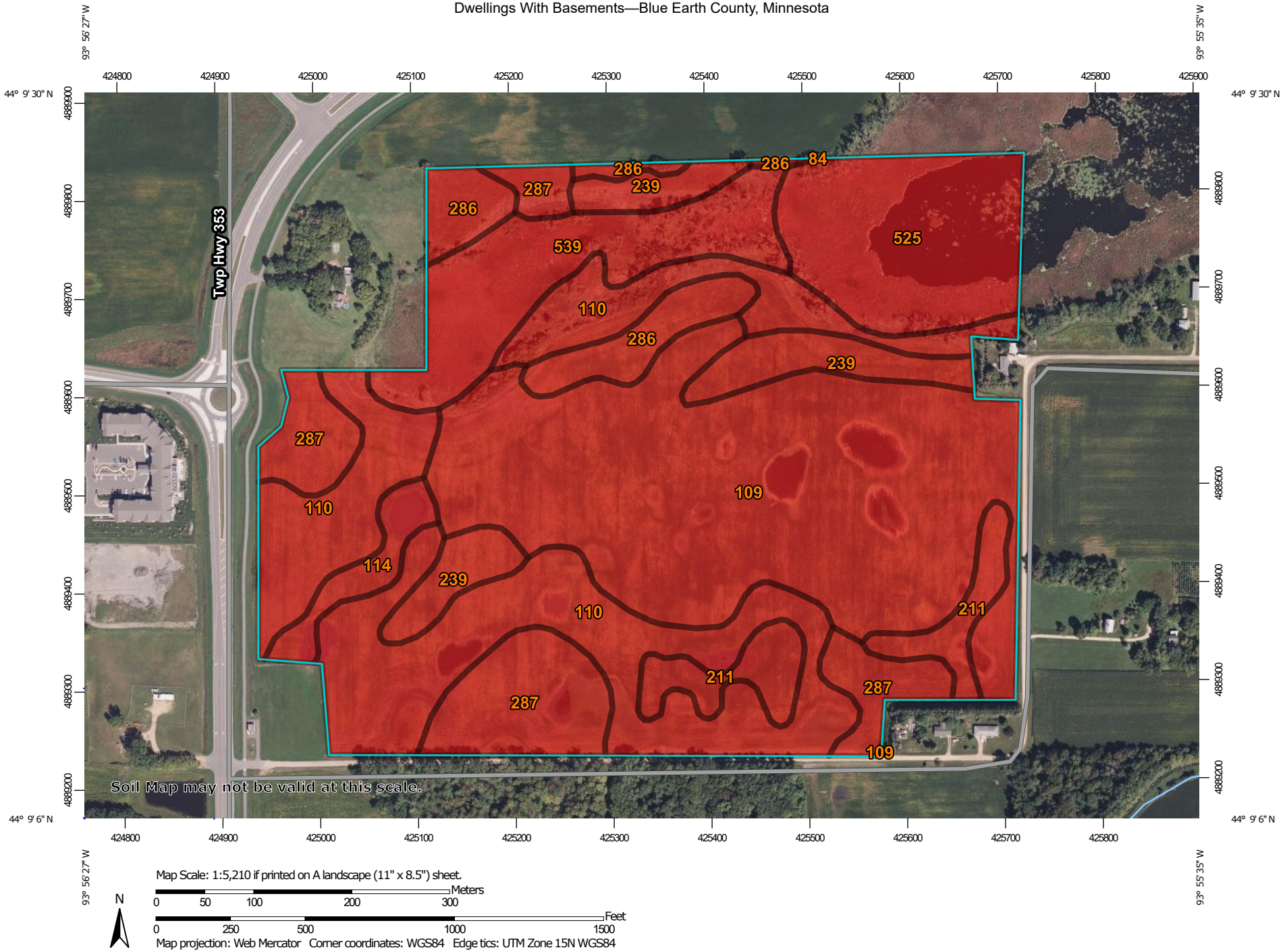
Other components with different ratings may be present in each map unit. The ratings for all components, regardless of the map unit aggregated rating, can be viewed by generating the equivalent report from the Soil Reports tab in Web Soil Survey or from the Soil Data Mart site. Onsite investigation may be needed to validate these interpretations and to confirm the identity of the soil on a given site.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher



Map Scale: 1:5,210 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 50 100 200 300

Feet
0 250 500 1000 1500

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 15N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

Very limited

Somewhat limited

Not limited

Not rated or not available

Soil Rating Lines

Very limited

Somewhat limited

Not limited

Not rated or not available

Soil Rating Points

Very limited

Somewhat limited

Not limited

Not rated or not available

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Warning: Soil Map may not be valid at this scale.

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Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

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Soil Survey Area: Blue Earth County, Minnesota
Survey Area Data: Version 20, Sep 6, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 30, 2020—Oct 8, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Dwellings With Basements

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
84	Brownton silty clay loam, 0 to 2 percent slopes	Very limited	Brownton (90%)	Depth to saturated zone (1.00)	0.0	0.0%
				Shrink-swell (0.97)		
			Okoboji (10%)	Ponding (1.00)		
				Depth to saturated zone (1.00)		
				Shrink-swell (0.69)		
109	Cordova clay loam, 0 to 2 percent slopes	Very limited	Cordova (85%)	Depth to saturated zone (1.00)	32.8	31.8%
				Shrink-swell (0.05)		
			Le Sueur (10%)	Depth to saturated zone (1.00)		
				Shrink-swell (0.09)		
			Glencoe (5%)	Ponding (1.00)		
				Depth to saturated zone (1.00)		
				Shrink-swell (0.05)		
110	Marna silty clay loam, 0 to 2 percent slopes	Very limited	Marna (85%)	Depth to saturated zone (1.00)	25.0	24.2%
				Shrink-swell (0.95)		
			Okoboji (7%)	Ponding (1.00)		
				Depth to saturated zone (1.00)		
				Shrink-swell (0.69)		
			Guckeen (5%)	Depth to saturated zone (1.00)		
				Shrink-swell (0.34)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
			Brownton (3%)	Depth to saturated zone (1.00)		
				Shrink-swell (0.83)		
114	Glencoe silty clay loam, 0 to 1 percent slopes	Very limited	Glencoe (80%)	Ponding (1.00)	2.0	1.9%
				Depth to saturated zone (1.00)		
				Shrink-swell (0.07)		
			Okoboji (10%)	Ponding (1.00)		
				Depth to saturated zone (1.00)		
				Shrink-swell (0.69)		
			Webster (5%)	Depth to saturated zone (1.00)		
				Shrink-swell (0.03)		
			Canisteo (5%)	Depth to saturated zone (1.00)		
211	Lura silty clay, 0 to 1 percent slopes	Very limited	Lura (85%)	Ponding (1.00)	4.2	4.0%
				Depth to saturated zone (1.00)		
				Shrink-swell (1.00)		
			Knoke (10%)	Ponding (1.00)		
				Depth to saturated zone (1.00)		
				Shrink-swell (0.41)		
			Waldorf (5%)	Depth to saturated zone (1.00)		
				Shrink-swell (1.00)		
239	Le Sueur loam, 1 to 3 percent slopes	Very limited	Le Sueur (80%)	Depth to saturated zone (1.00)	6.1	5.9%
				Shrink-swell (0.09)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
			Cordova (10%)	Depth to saturated zone (1.00)		
				Shrink-swell (0.05)		
			Webster (5%)	Depth to saturated zone (1.00)		
				Shrink-swell (0.03)		
286	Shorewood silty clay loam, 1 to 6 percent slopes	Very limited	Shorewood (90%)	Depth to saturated zone (1.00)	4.6	4.5%
				Shrink-swell (1.00)		
287	Minnetonka silty clay loam	Very limited	Minnetonka (90%)	Depth to saturated zone (1.00)	9.8	9.5%
				Shrink-swell (1.00)		
525	Muskego soils, 0 to 1 percent slopes	Very limited	Muskego, drained (45%)	Ponding (1.00)	10.0	9.7%
				Subsidence (1.00)		
				Depth to saturated zone (1.00)		
				Organic matter content (1.00)		
			Muskego, ponded (40%)	Ponding (1.00)		
				Subsidence (1.00)		
				Depth to saturated zone (1.00)		
				Organic matter content (1.00)		
			Klossner, drained (8%)	Ponding (1.00)		
				Subsidence (1.00)		
				Depth to saturated zone (1.00)		
			Glencoe (4%)	Ponding (1.00)		
				Depth to saturated zone (1.00)		

Map unit symbol	Map unit name	Rating	Component name (percent)	Rating reasons (numeric values)	Acres in AOI	Percent of AOI
				Shrink-swell (0.05)		
			Canisteo (3%)	Depth to saturated zone (1.00)		
539	Klossner muck, lake plain, depressional, 0 to 1 percent slopes	Very limited	Klossner, drained (85%)	Ponding (1.00)	8.7	8.4%
				Subsidence (1.00)		
				Depth to saturated zone (1.00)		
			Lura (10%)	Ponding (1.00)		
				Depth to saturated zone (1.00)		
				Shrink-swell (1.00)		
			Brownton (5%)	Depth to saturated zone (1.00)		
				Shrink-swell (0.83)		
Totals for Area of Interest					**103.2**	**100.0%**

Rating	Acres in AOI	Percent of AOI
Very limited	103.2	100.0%
Totals for Area of Interest	**103.2**	**100.0%**

Description

Dwellings are single-family houses of three stories or less. For dwellings with basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of about 7 feet.

The ratings for dwellings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility. Compressibility is inferred from the Unified classification of the soil. The properties that affect the ease and amount of excavation include depth to a water table, ponding, flooding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the specified use. "Not limited" indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. "Somewhat limited" indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. "Very limited" indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

The map unit components listed for each map unit in the accompanying Summary by Map Unit table in Web Soil Survey or the Aggregation Report in Soil Data Viewer are determined by the aggregation method chosen. An aggregated rating class is shown for each map unit. The components listed for each map unit are only those that have the same rating class as listed for the map unit. The percent composition of each component in a particular map unit is presented to help the user better understand the percentage of each map unit that has the rating presented.

Other components with different ratings may be present in each map unit. The ratings for all components, regardless of the map unit aggregated rating, can be viewed by generating the equivalent report from the Soil Reports tab in Web Soil Survey or from the Soil Data Mart site. Onsite investigation may be needed to validate these interpretations and to confirm the identity of the soil on a given site.

Rating Options

Aggregation Method: Dominant Condition

Aggregation is the process by which a set of component attribute values is reduced to a single value that represents the map unit as a whole.

A map unit is typically composed of one or more "components". A component is either some type of soil or some nonsoil entity, e.g., rock outcrop. For the attribute being aggregated, the first step of the aggregation process is to derive one attribute value for each of a map unit's components. From this set of component attributes, the next step of the aggregation process derives a single value that represents the map unit as a whole. Once a single value for each map unit is derived, a thematic map for soil map units can be rendered. Aggregation must be done because, on any soil map, map units are delineated but components are not.

For each of a map unit's components, a corresponding percent composition is recorded. A percent composition of 60 indicates that the corresponding component typically makes up approximately 60% of the map unit. Percent composition is a critical factor in some, but not all, aggregation methods.

The aggregation method "Dominant Condition" first groups like attribute values for the components in a map unit. For each group, percent composition is set to the sum of the percent composition of all components participating in that group. These groups now represent "conditions" rather than components. The attribute value associated with the group with the highest cumulative percent composition is returned. If more than one group shares the highest cumulative percent composition, the corresponding "tie-break" rule determines which value should be returned. The "tie-break" rule indicates whether the lower or higher group value should be returned in the case of a percent composition tie. The result returned by this aggregation method represents the dominant condition throughout the map unit only when no tie has occurred.

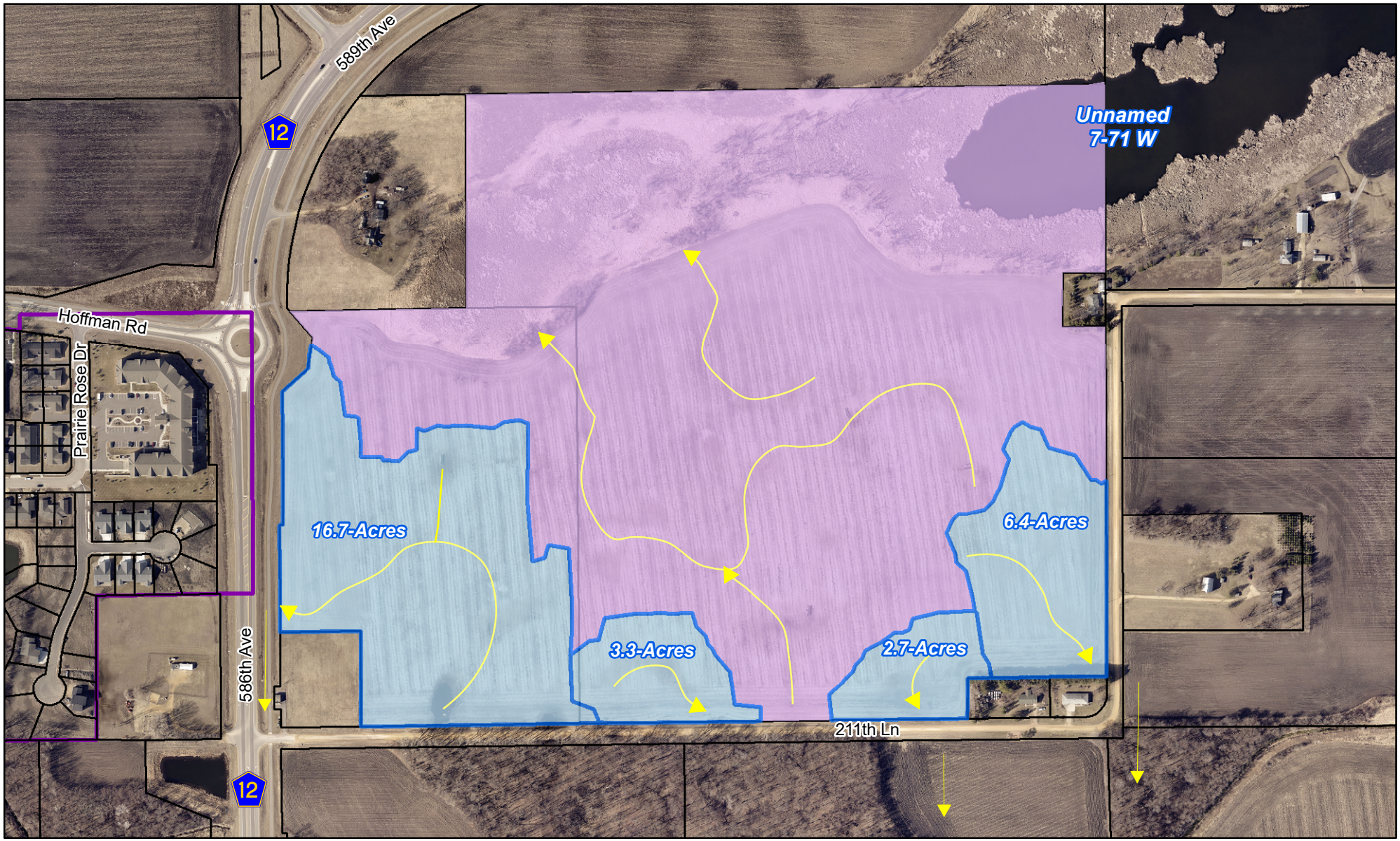
Component Percent Cutoff: None Specified

Components whose percent composition is below the cutoff value will not be considered. If no cutoff value is specified, all components in the database will be considered. The data for some contrasting soils of minor extent may not be in the database, and therefore are not considered.

Tie-break Rule: Higher

The tie-break rule indicates which value should be selected from a set of multiple candidate values, or which value should be selected in the event of a percent composition tie.

Attachment 3. Mesenbrink Property - Existing Watersheds and Flow Direction



Surface Water Flow Direction

Mesenbrink Property Draining Away from Wetland (7-71W)

Mesenbrink Property Draining Towards Wetland (7-71W)

Parcel

0 500 Feet

N

Prepared By: Blue Earth County
2023

Source: 2022 Aerial Photo
Watersheds - 2012 LiDAR DEM
(Widseth - Hydroconditioing)

DEPARTMENT OF NATURAL RESOURCES
Division of Ecological & Water Resources
Region 4 (Southern Region)
21371 Highway 15 South
New Ulm, MN 56073

March 9, 2023

Mark Konz
Associate Director – Planning and Development Services
City of Mankato
mkonz@mankatomn.gov

Subject: DNR Comments on Mesenbrink Mixed Use Development Project EAW

Dear Mr. Konz,

Thank you for the opportunity to review the Environmental Assessment Worksheet (EAW) for the Mesenbrink Mixed-Use Development Project. The proposed project, located in Blue Earth County T108 R26 S14&15, includes the construction of both housing (112 single-family homes, 713 apartment units) and commercial property on approximately 105 acres of land with plans to be annexed into the City of Mankato.

Water Resources

The proposed development property includes multiple wetlands protected by the Wetland Conservation Act (WCA), and Public Water Wetland #07-71. The EAW notes that the existing property is relatively flat, with small pocket depressions that store runoff on the landscape. This water storage is essential as the project proposes to create approximately 30 acres of new impervious surface area, which drain to the protected public water wetland on the property's northern edge and has the potential to significantly affect fish, wildlife, and overall aquatic resource quality of this wetland and the downstream watercourse.

The EAW concludes that impacts to the public water wetland will be avoided and that a 150-foot setback will be maintained from the OHWL of the wetland. However, the EAW needs to address the significance of the impact on the public water wetland. Public water wetland 07-71 is classified as a Natural Environment (NE) waterbody according to Blue Earth County Shoreland Ordinance Article III. Shoreland Classification System and Landuse Districts. Additionally, the far, extreme western portion of the public water basin must be added to the PWI map. This is part of the public water wetland basin since it is connected to this area below the OHWL, documented during the DNR OHWL survey in 2013. Therefore, an updated public water wetland and OHWL boundary should be applied to the project area so shoreland development standards for the natural environment lake can be applied correctly. Additionally, the project is expected to impact the public water wetland, so a Public Water Work permit is required. Information required for this permit will include hydraulic modeling for any planned development to assess the project's potential impact on the public water wetland.

A residential PUD will also be required as part of the project, which requires 50% open space and 70% of the shore impact zone to be included in the designated open space. Density and setback calculations will also be required as part of that process and should reflect the updated OHWL boundary. Of note, the EAW lists the

building setback as 150 feet. However, the City of Mankato and Blue Earth County shoreland ordinances require the setback on a natural environment waterbody to be 200 feet. The proposer should ensure the project meets the correct shoreland ordinance requirements for future revision.

Section 12bii requires the proposer to discuss the environmental effects of stormwater discharges on receiving water bodies post-construction, including how the project will affect runoff volume, discharge rate, and change in pollutants. The EAW notes that runoff from the proposed project would be collected into stormwater sewer pipes and routed to onsite stormwater wet sedimentation basins to remove pollutants and regulate discharge rates leaving the property at or below existing conditions. However, modeling or design information needs to be provided. Please provide more information on:

- how the ponds will be designed to treat water quality
- the runoff volumes for a range of storm events and the change in runoff volume and peak flow due to the development
- where the stormwater ponds drain to and impact any receiving waters
- the presence of any agricultural drainage tile, what will be done with it, and how it interacts with the stormwater system

- how the pond and its outlet be designed to ensure it does not support and propagate invasive fish (e.g., goldfish, carp, etc.)

We recommend that development projects hydrologically mitigate all runoff volume and peak flow rates above existing site conditions by adding sufficient water storage, water use (evapotranspiration), and infiltration capacity. We also recommend that water quality practices are integrated into the project. These factors would prevent aquatic system degradation to the public water wetland and connected downstream resources.

Climate Change Analysis

Section 7 of the EAW form covers climate change and its impacts on the project area. The EAW notes that "Comparing the projected values with the historical values, the average daily mean, maximum, and minimum temperatures and the average annual precipitation are all expected to rise over the life of the project" this is important as the project is already adding increase impervious surface, excessive runoff and impacting water infiltration. Climate changes, including additional precipitation, exacerbate many issues with this project and negatively impact all water resources.

Conclusion

The proposed project will alter the hydrology and runoff of the 105-acre project area and potentially negatively impact the adjacent public water wetland significantly. The DNR requests additional information outlined in this letter and spreadsheet comments detailing the required information. Please find the attached excel spreadsheet titled *Mesenbrink Mixed-Use Development EAW Comments*. Do not hesitate to contact DNR area Hydrologist Katie Wigen at Katie.wigen@state.mn.us with any questions.

Sincerely,

Todd Kolander
DNR District Manager

cc:
Craig Soupir, DNR Area Fisheries
Katie Wigen, DNR Area Hydrologist
Tim Gieseke, Korey Woodley, Scott Roemhildt, DNR Regional Management
Dan Petrik, DNR Land Use Specialist
John Mesenbrink, Project Proposer

From: Konz, Mark
To: Farveh Makhssous
Subject: Fwd: MnDOT District 7 comments: Mesenbrink Development EAW (Mankato, MN)
Date: Wednesday, March 8, 2023 4:14:38 PM
Attachments: image002.png

Farveh,

Here are comments from MNDOT.

Mark

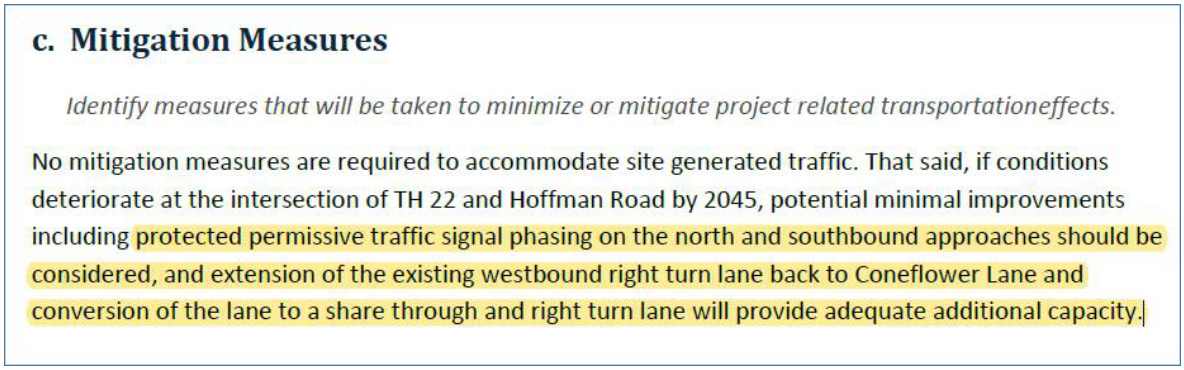
Sent from my Verizon, Samsung Galaxy smartphone
Get Outlook for Android

From: Piltaver, Angela (DOT) <angela.piltaver@state.mn.us>
Sent: Wednesday, March 8, 2023 4:11:19 PM
To: Konz, Mark <mkonz@mankatomn.gov>
Cc: Parker, Samuel (DOT) <Samuel.Parker@state.mn.us>; Thompson, Scott (DOT) <scott.m.thompson@state.mn.us>
Subject: MnDOT District 7 comments: Mesenbrink Development EAW (Mankato, MN)

Mark,

Good afternoon! MnDOT District 7 was notified of the Mandatory EAW for the proposed Mesenbrink Development, a 105-acre mixed use development located at the terminus of Hoffman Road, on the east side of Blue Earth County CSAH-12. The District has reviewed this EAW and provides the following comments:

1. The EAW notes possible mitigations at the State Hwy 22 & Hoffman Road intersection, given the anticipated traffic volumes from the proposed development. These mitigations are shown in the highlighted portion of the screenshot below.



c. Mitigation Measures

Identify measures that will be taken to minimize or mitigate project related transportationeffects.

No mitigation measures are required to accommodate site generated traffic. That said, if conditions deteriorate at the intersection of TH 22 and Hoffman Road by 2045, potential minimal improvements including protected permissive traffic signal phasing on the north and southbound approaches should be considered, and extension of the existing westbound right turn lane back to Coneflower Lane and conversion of the lane to a share through and right turn lane will provide adequate additional capacity.

   - Protected/permitted signal phasing on State Hwy 22: this is not practical given the high-speed environment and anticipated heavy traffic volumes. As traffic volumes increase, permissive left turn phases tend to result in increased crash rates (e.g.: US 169 & State Hwy 22, on the south side of Saint Peter). Accordingly, MnDOT would not implement permissive left turn phasing in this circumstance as a mitigation to excessive delays. This strategy should not be considered as a mitigation.

   - Westbound right turn lane extension, and conversion to shared through/right lane: only part of this proposed mitigation is practical (extension). Conversion to a shared through/right lane is not feasible given the existing raised island on the west side of State Hwy 22. The presence of the island would prevent through traffic movements. Removal of the island would increase delay for southbound right turning vehicles as those vehicles would no longer have a non-yielding free-right-bypass. Additionally, conversion to a shared through/right lane could exacerbate delay for westbound right turning traffic as a single through vehicle at the front of the queue would prevent permissive right turn on red movements.

2. Additionally, the following comments pertain to the Traffic Analysis memo in Appendix B:
   - Page 1 incorrectly identifies a 45 MPH speed limit for Hwy 22. The speed limit is 55 MPH in the vicinity of Hoffman Road.
   - Table 4 on Page 5 of the Traffic Analysis, shows building the proposed development will improve delay on State Hwy 22 (NBL & SBL) and decrease the WBT queue length. These improvements to delay and queue length are counterintuitive as the development would add traffic to the intersection without making any improvements at the intersection.
   - Tables 4 & 5 also refer to the intersection of State Hwy 3 and State Hwy 149 which are not near this development (these state highways are not in District 7 at all).
   - See earlier comment about impracticality of implementing permissive left-turn phasing on State Hwy 22 at Hoffman Road, and the creation of a shared through/right lane, to improve intersection operations.

Should you or the developer have any questions, please let me know. Thank you for the opportunity to review the EAW for the proposed development.

Best regards,

Angela Piltaver, AICP, LEED AP *(she/her/hers)*
Senior Planner | District 7 - Planning

Minnesota Department of Transportation

2151 Bassett Drive
Mankato, MN 56001
C: 507-508-3409
mndot.gov/

DEPARTMENT OF TRANSPORTATION

DEPARTMENT OF ADMINISTRATION
STATE ARCHAEOLOGIST

328 West Kellogg Blvd St Paul, MN 55102
OSA.Project.Reviews.adm@state.mn.us

Date: 03/07/2023

Mark Konz
City of Mankato
507-387-8611
mkonz@mankatomn.gov

Project Name: Mesenbrink Mixed-Use Development, Mankato, MN

Notes/Comments
Thank you for the opportunity to comment on the above listed project. Review of our files indicates there are no previously recorded archaeological sites, archaeological site leads, or burials in the proposed project area. However, the project area has moderate potential to contain archaeological sites or features, therefore, the Office of the State Archaeologist recommends a phase I archaeological reconnaissance conducted by a qualified archaeologist is recommended. The Minnesota Historical Society maintains a list of cultural resource specialists at: https://www.mnhs.org/preservation/directory.
Recommendations
☐ Not Applicable ☐ No Concerns ☐ Monitoring ☐ Phase Ia – Literature Review ☒ Phase I – Reconnaissance survey ☐ Phase II – Evaluation ☐ Phase III – Data Recovery

If you require additional information or have questions, comments, or concerns please contact our office.

Sincerely,

Jennifer Tworzyanski
Assistant to the State Archaeologist
OSA
Kellogg Center 328 Kellogg Blvd W
St Paul MN 55102
651.201.2265
jennifer.tworzyanski@state.mn.us

From: Konz, Mark
To: Farveh Makhssous
Cc: kenw@ifssteelfab.com
Subject: FW: City Land Use Plan
Date: Monday, March 6, 2023 8:15:04 AM
Attachments: image001.png
image002.png
image003.png
image004.png
image005.png
image006.png

Good morning Farveh,

Below are questions from Ken Wilmes related to the Mesenbrink EAW. Please include these questions in the official record and provide a response.

Thank you,

Mark

From: Vogel, Paul <pvogel@mankatomn.gov>
Sent: Monday, March 6, 2023 7:54 AM
To: Ken Wilmes <kenw@ifssteelfab.com>
Cc: Konz, Mark <mkonz@mankatomn.gov>
Subject: RE: City Land Use Plan

Thank Ken. These questions will be submitted as part of the record. You do not need to come in to fill out a sheet. Mark Konz is cc'd on this email.

From: Ken Wilmes <kenw@ifssteelfab.com>
Sent: Friday, March 3, 2023 9:43 PM
To: Vogel, Paul <pvogel@mankatomn.gov>
Subject: Re: City Land Use Plan

Thanks Paul for getting this to us.

I have another concern/question on the Mesenbrink Project and I am not sure if I should address it to you or Mark Konz ? but my question is in in regard to drainage besides the water collection ponds will their be storm sewer drainage and where will they drain to ? Do they drain to a storm sewer that is part of the Hoffman Road extension down to the Minnesota river ?

I wish this question to be placed on one of those sheets like we filled out so that it part of the record do I need to come down and fill one out ?

Thank you,

Ken Wilmes
469 6330

From: Vogel, Paul <pvogel@mankatomn.gov>
Sent: Thursday, March 2, 2023 8:25 AM
To: Ken Wilmes <kenw@ifssteelfab.com>
Subject: City Land Use Plan

Ken, the City's long range plans for development can be view here: https://www.mankatomn.gov/your-government/departments/community-development/planning-and-zoning/land-use-plan

Parks and open space plans can be found here: https://content.mankatomn.gov/files/DraftParks.pdf

Finally, the long range transportation plan can be found here: https://mnmapo.org/lrtp/

Other transportation planning documents can be found here: https://mnmapo.org/planning-documents/

Sincerely,

Paul Vogel
Director of Community Development

City of Mankato
Intergovernmental Center | 10 Civic Center Plaza | Mankato, MN 56001
Office: (507) 387-8613 | **Mobile:** (507) 340-3733

Leading the way as a prosperous, diverse, regional community.
Responsive • Efficient • Greater Good • Innovative • Open • Neighborly

From: Konz, Mark
To: Farveh Makhssous
Cc: Ken Wilmes
Subject: FW: Mesenbrink project
Date: Wednesday, March 8, 2023 4:46:40 PM

Farveh,

Here are additional comments from Mr. Wilmes.

Mark

From: Ken Wilmes <kenw@ifssteelfab.com>
Sent: Wednesday, March 8, 2023 4:09 PM
To: Konz, Mark <mkonz@mankatomn.gov>; Vogel, Paul <pvogel@mankatomn.gov>
Subject: Mesenbrink project

Mark, Paul,

I still have questions and concerns about water run-off and drainage of the Mesenbrink property supposedly Bolton and Menk have engineered this but what is the plan ? With all of the new roofs, driveways, parking lots and streets that is a tremendous amount of water runoff.
What are their calculations based on a 100-year rain event ? a 10" rain event ? if the ground is already saturated ? What percent of runoff goes into the created ponds ? what percent goes into storm sewers ? where do all of the storm sewers drain to ? what percent natural runoff will go into the slough ? Can this engineering data be provided to me ?

It would be nice to know this before everything is approved.

Do I need to submit this on one of the forms that you had at the meeting ?

Thank you,
Ken Wilmes

From: Konz, Mark
To: Farveh Makhssous
Subject: EAW Comments
Date: Monday, February 13, 2023 11:54:57 AM

Farveh,

I received a call from Linda Wilmes. Linda attended the preliminary meetings related to the Meisenbrink proposal.

The number of housing units have changed from 73 houses to 112 houses. The apartment units changed from 400 to 713 apartment units.

The commercial density will also increase the level of traffic on this area. During the original meetings, it was unclear what the level of commercial would be. Traffic is also a concern to the west near the middle school.

In terms of storm water runoff, there are concerns about how the increase in density of housing and commercial impact storm water runoff and other utilities.

Linda Wilmes
58928 211th Lane
Mankato MN 56001
507-469-6431

Mark Konz
Associate Director - Planning and Development Services
City of Mankato
10 Civic Center Plaza
PO Box 3368
Mankato, MN 56002-3368
Phone: 507-387-8611
Fax: 507-388-7530

Mesenbrink Mixed-Use Development Project - Environmental Assessment Worksheet (EAW) Comment Form

Note: Please provide any comments on the EAW in written format by Thursday, March 9, 2023. Comments received after this date will not be considered. All comments should be directed to: Mark Konz, Associate Director - Planning and Development Services, City of Mankato, 10 Civic Center Plaza, PO Box 3368, Mankato, MN 56002-3368, or via e-mail at: mkonz@mankatomn.gov.

Name: Linda Schriock **Phone:** 507-779-9947

Email: lschri@hickorytech.net

Comment:

If there are any changes to these "proposed" or set plans, can you please notify us.

thanks for your time.

For more information visit:
https://www.mankatomn.gov/your-government/departments/community-development

SCAN ME

Mesenbrink Mixed-Use Development Project - Environmental Assessment Worksheet (EAW) Comment Form

Note: Please provide any comments on the EAW in written format by Thursday, March 9, 2023. Comments received after this date will not be considered. All comments should be directed to: Mark Konz, Associate Director - Planning and Development Services, City of Mankato, 10 Civic Center Plaza, PO Box 3368, Mankato, MN 56002-3368, or via e-mail at: mkonz@mankatomn.gov.

Name: Donald & Marilyn Sieberg **Phone:** 507-345-8726

Email: dMSieberg12@gmail.com

Comment:

We need more outlets for driving. anywhere in the area Schools all the Homes already there.

To many homes

For more information visit:
https://www.mankatomn.gov/your-government/departments/community-development

SCAN ME

Mesenbrink Mixed-Use Development Project - Environmental Assessment Worksheet (EAW)

Comment Form

Note: Please provide any comments on the EAW in written format by Thursday, March 9, 2023. Comments received after this date will not be considered. All comments should be directed to: Mark Konz, Associate Director - Planning and Development Services, City of Mankato, 10 Civic Center Plaza, PO Box 3368, Mankato, MN 56002-3368, or via e-mail at: mkonz@mankatomn.gov.

Name: Jeff Schmidt **Phone:** 507-317-2257

Email:

Comment:

Where will the water go to into County Ditch? - concerned about extra costs to us because of the water removal over future yrs.

- What about future Roads to the East - would it go thru our land

For more information visit:
https://www.mankatomn.gov/your-government/departments/community-development

SCAN ME

Mesenbrink Mixed-Use Development Project - Environmental Assessment Worksheet (EAW) Comment Form

Note: Please provide any comments on the EAW in written format by Thursday, March 9, 2023. Comments received after this date will not be considered. All comments should be directed to: Mark Konz, Associate Director - Planning and Development Services, City of Mankato, 10 Civic Center Plaza, PO Box 3368, Mankato, MN 56002-3368, or via e-mail at: mkonz@mankatomn.gov.

Name: Ken Wilmes **Phone:** 507 469 6330

Email: Kenw@ifssteelfab.com

Comment:

My concern is having to much water drain into the slough.

Make sure we have enough storage pond capacity.

I also have concerns about excess traffic on 211 Lane.

For more information visit:
https://www.mankatomn.gov/your-government/departments/community-development

SCAN ME

Mesenbrink Mixed-Use Development Project - Environmental Assessment Worksheet (EAW) Comment Form

Note: Please provide any comments on the EAW in written format by Thursday, March 9, 2023. Comments received after this date will not be considered. All comments should be directed to: Mark Konz, Associate Director - Planning and Development Services, City of Mankato, 10 Civic Center Plaza, PO Box 3368, Mankato, MN 56002-3368, or via e-mail at: mkonz@mankatomn.gov.

Name: Linda Wilmes **Phone:** 507-469-6431

Email: _____

Comment:

main concern is water drainage.

Traffic congestion.

For more information visit:
https://www.mankatomn.gov/your-government/departments/community-development

SCAN ME

Mesenbrink Mixed-Use Development Project - Environmental Assessment Worksheet (EAW)

Comment Form

Note: Please provide any comments on the EAW in written format by Thursday, March 9, 2023. Comments received after this date will not be considered. All comments should be directed to: Mark Konz, Associate Director - Planning and Development Services, City of Mankato, 10 Civic Center Plaza, PO Box 3368, Mankato, MN 56002-3368, or via e-mail at: mkonz@mankatomn.gov.

Name: Denise Thompson **Phone:** 507-995-6788

Email: thompd1903@gmail.com

Comment:

We currently cannot get through the Prairie Wind round-about in a timely matter. 2x/day

There are currenty apt. complexes being built and many condo units, which will add to this problem. More condos being proposed — all by Prairie Wind.

(*) There needs to be a second exit out of Prairie Wind prior to the Mesenbrink Project.

I also think 211th should be developed for traffic.

Thank you.

For more information visit:
https://www.mankatomn.gov/your-government/departments/community-development

SCAN ME

APPENDIX C – UPDATED EAW DOCUMENT

ENVIRONMENTAL ASSESSMENT WORKSHEET (EAW)

Mesenbrink Mixed-Use Development, Mankato, MN

April 2023

ENVIRONMENTAL ASSESSMENT WORKSHEET

Table of Contents

Tables

Figures (Appendix A)

Appendices

1 Project Title

Mesenbrink Mixed-Use Development, Mankato, MN

2 Proposer

Organization:	Mesenbrink Construction & Engineering, Inc.
Contact person:	John Mesenbrink
Title:	Owner
Address:	7765 East 175th Street
City, State, ZIP:	Prior Lake, MN 55372
Phone:	952 447 5058
Email:	jemmbc@mesenbrinkconstruction.com

3 RGU

Organization:	City of Mankato
Contact person:	Mark Konz
Title:	Associate Director - Planning and Development Services
Address:	10 Civic Center Plaza PO Box 3368
City, State, ZIP:	Mankato, MN 56002-3368
Phone:	507-387-8611
Fax:	507-388-7530
Email:	mkonz@mankatomn.gov

4 Reason for EAW Preparation

Required:

☐ EIS Scoping

☒ Mandatory EAW MS 4410-4300, Subpart 19.D.

Discretionary:

☐ Citizen petition

☐ RGU discretion

☐ Proposer initiated

Mandatory EAW, as identified in *Minnesota Rules, Part 4410.4300, Subpart 19.D.*

5 Project Location

County:	Blue Earth County		
City/Township:	Mankato		
PLS Location (¼, ¼, Section, Township, Range):	**Section**	**Township**	**Range**
SE Quarter	15	108N	26W
Watershed (82 major watershed scale):	Le Sueur River		
GPS Coordinates:	44.1549, -93.9339		
Tax Parcel Number:	R430915400009 and R430915400003		

6 Project Description

a. EQB Monitor Description

Provide the brief project summary to be published in the EQB Monitor, (approximately 50 words).

Mesenbrink Construction proposes the construction of a new mixed-use development consisting of retail space, apartment units and single family residential, located on approximately 105 acres in Blue Earth County (to be annexed into the City of Mankato).

b. Complete Description

Give a complete description of the proposed project and related new construction, including infrastructure needs. If the project is an expansion include a description of the existing facility. Emphasize: 1) construction, operation methods and features that will cause physical manipulation of the environment or will produce wastes, 2) modifications to existing equipment or industrial processes, 3) significant demolition, removal or remodeling of existing structures, and 4) timing and duration of construction activities.

Project Description (Including Context/Need)

Mesenbrink Construction proposes the construction of a mixed-use development located on approximately 105 acres in Blue Earth County (to be annexed into the City of Mankato). The location of the Proposed Project is depicted on **Figure 1, "Regional Location,"** and **Figure 2, "USGS Location."** The existing property is primarily of agricultural use. In the northeast corner of the property contains part of an unnamed lake (07007100 as per the DNR). Mesenbrink Construction would develop the property from west to east starting with retail/residential units on the west side of the property. Then transition into apartment units in the middle of the development. Finishing with single family homes on the east side of the property. The development plans for the Proposed Project are depicted on **Figure 3, "Proposed Improvements."** The construction of the development would utilize traditional construction methods such as earth-moving equipment. Utilities within the Study Area would be installed as per the

City of Mankato guidelines. The construction of the development is planned to begin 2024 with finishing of the project to be determined. Construction is anticipated to commence in 2024, with full build-out completed over the course of five to ten years, depending on economic conditions.

The proposed mixed-use development follows the City of Mankato's *Land Use Plan* for the development of retail/residential, multiple-family residential, and single-family residential. According to the *Mankato Area Housing Study Update*, dated August 2022, the City of Mankato will have an estimated growth of 335 to 350 households per year. Vacancy rates for multiple-family units within the City of Mankato are currently low, necessitating the construction of additional multiple-family units.

Construction Methods

Traditional construction methods will be used during the construction of this development.

Modification to Existing Equipment

No modifications to existing equipment are anticipated to be required for the implementation of the Proposed Project.

c. Project Magnitude

Table 1: Project Magnitude

Total Project Acreage	105 acres
Linear project length	0.5 mile
Number and type of residential units	112 Single Family Homes 713 Apartment Units
Residential building area (in square feet)	3,436,764 square feet (land area)
Commercial building area (in square feet)	247,892 square feet (land area)
Industrial building area (in square feet)	N/A
Institutional building area (in square feet)	N/A
Other uses – specify (in square feet)	N/A
Structure height(s)	Max. 45 feet

d. Project Purpose

Explain the project purpose; if the project will be carried out by a governmental unit, explain the need for the project and identify its beneficiaries.

The purpose of the Proposed Project is to provide additional housing and commercial property in the City of Mankato. The Proposed Project would also provide an extension of sanitary sewer and watermain to services to the future development of the property to the east (in the proposed extension of Hoffman Road to the east).

e. Future Development

Are future stages of this development including development on any other property planned or likely to happen?

☐ *Yes* ☒ *No*

If yes, briefly describe future stages, relationship to present project, timeline and plans for environmental review.

f. Previous Development

Is this project a subsequent stage of an earlier project? ☐ *Yes* ☒ *No*

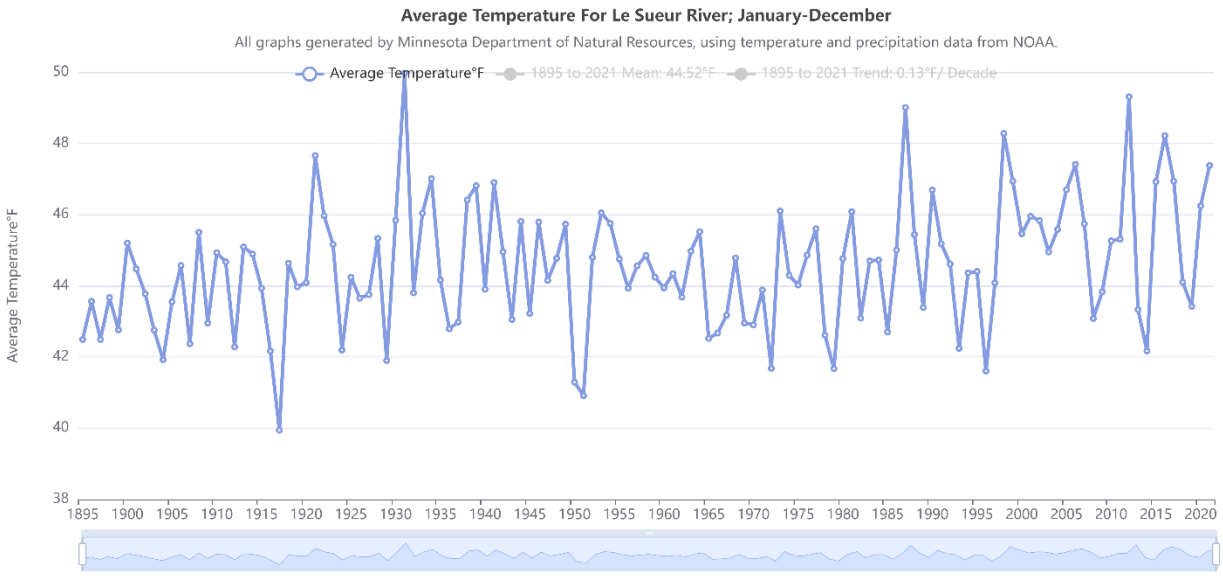
If yes, briefly describe the past development, timeline and any past environmental review.

7 Climate Adaptation and Resilience

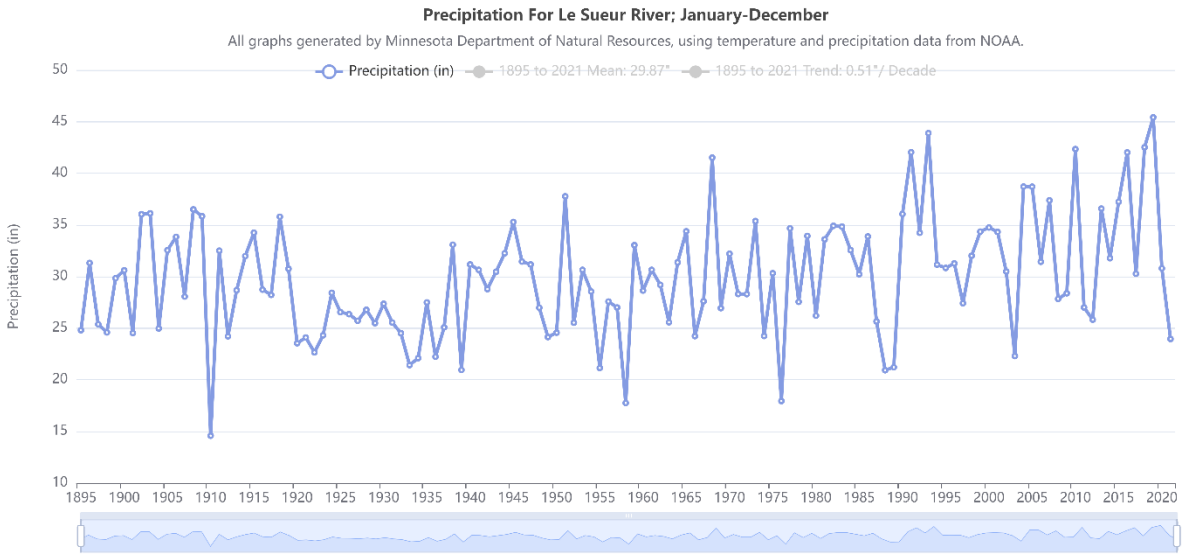
a. Climate Trends

Describe the climate trends in the general location of the project (see guidance: Climate Adaptation and Resilience) and how climate change is anticipated to affect that location during the life of the project.

The Proposed Project is located within the Le Sueur River Watershed. Data from the Minnesota Department of Natural Resources (DNR) *Minnesota Climate Explorer* shows climate trends for this watershed.[1] Historical data from 1895 to 2021 shows variable average temperatures and precipitation totals from year to year, as shown in the graphs below:



[1] Minnesota Department of Natural Resources. 2022. Minnesota Climate Explorer. Electronic resource, https://arcgis.dnr.state.mn.us/ewr/climateexplorer/main/historical, accessed January 2023.



The trends for temperature and precipitation within the Le Sueur River Watershed are:

- Average daily mean temperature of 44.52 degrees Fahrenheit with an increase of 0.13 degrees F per decade
- Average daily maximum temperature of 54.89 degrees Fahrenheit with a decrease of 0.02 degrees F per decade
- Average daily minimum temperature of 34.15 degrees Fahrenheit with an increase of 0.25 degrees F per decade
- Average annual precipitation of 29.87 inches with an increase of 0.51 inch per decade

Projected future data for the Le Sueur River Watershed was also evaluated using the *Minnesota Climate Explorer*. The mid-century (2040-2059) projections fit with the life of the project and are summarized below. The data makes projections using RCP 4.5 (representative concentration pathway), which is an intermediate stabilization scenario. The information shown is the model mean of eight general circulation global climate models.

- Projected average daily mean temperature: 48.59 degrees Fahrenheit
- Projected daily maximum temperature: 55.36 degrees Fahrenheit
- Projected daily minimum temperature: 42.05 degrees Fahrenheit
- Projected average annual precipitation: 32.07 inches

Comparing the projected values with the historical values, the average daily mean, maximum, and minimum temperatures and the average annual precipitation are all expected to rise over the life of the project.

b. Resource Categories

Table 2: Resource Categories

Resource Category	Climate Considerations	Project Information	Adaptations
Project Design	The Proposed Project involves the construction of new residential and commercial spaces. This will add new impervious surface as well as increase energy consumption within the Study Area.	Climate change-related risks and vulnerabilities include: - During intense rainfall events, increases in the amount of impervious surfaces may result in more localized flooding in the area - Certain building construction materials such as dark roofing materials absorb heat during the day and radiate it at night, which increases the urban heat island effect and amplifies the warming temperatures of climate change	The Study Area is outside of the 500-year flood plain according to FEMA's *Flood Insurance Risk Map*.[2] Blue Earth County's *Land Use Plan* identifies green infrastructure as a priority action.[3]
Land Use	Conversion of crop land to residential and commercial space will require the maintenance of associated roadways, sidewalks, and parking lots.	Climate change risks and vulnerabilities identified include: Increased freeze/thaw results in increased icing of roadways, trails, sidewalks, and parking lots, resulting in the need for increased salting. Chlorides degrade lake water quality and impact aquatic life. Chlorides also degrade soil and can kill landscape plantings	Blue Earth County's *Land Use Plan* identifies the following implementation action: "The development of future commercial uses in the rural area shall be reviewed for their emergency services, stormwater and wastewater treatment, access to transportation systems, and water supply needs and the corresponding impacts to those systems."[4]
Water Resources	Addressed in **Section 12**	Addressed in **Section 12**	Addressed in **Section 12**
Contamination/ Hazardous Materials/ Wastes	No hazardous waste is expected to be generated, used, or stored throughout the life of the project. Any waste generated during construction will be stored in marked containers in accordance with applicable laws and subsequently disposed of at licensed facilities.	N/A	N/A
Fish, wildlife, plant communities, and sensitive ecological resources (rare features)	Addressed in **Section 14**	Addressed in **Section 14**	Addressed in **Section 14**

[2] FEMA. Flood Map Area 2752310045D. Flood Map Service Center. 1990. Electronic resource, https://msc.fema.gov/portal/search?AddressQuery=Mankato%2C%20MN#, accessed October 2022.

8 Cover Types

Estimate the acreage of the site with each of the following cover types before and after development:

Project construction and disturbance limits were used to define the Study Area footprint. Existing and future land cover conditions within the Study Area are detailed in **Table 3**, **"Cover Types," Figure 4, "Existing Land Cover,"** and **Figure 5, "Future Land Cover."**

Table 3: Cover Types

Cover Type	Before (acres)	After (acres)	Cover Type	Before (acres)	After (acres)
Wetlands and shallow lakes (<2 meters deep)	28.59	21.5	Livestock rangeland/pastureland	0	0
Deep lakes (>2 meters deep)	0	0	Lawn/landscaping	0.34	43.51
Wooded/forest	0	0	Green infrastructure TOTAL (from table below*)	0	0
Rivers/Streams	0	0	Impervious surface	1.36	30.94
Brush/Grassland	0	0	Stormwater Pond (wet sedimentation basin)	0	3.56
Cropland	73.79	4.57	Other (describe)	0	0
			TOTAL	104.08	104.08

Table 4: Green Infrastructure

Green Infrastructure Type	Before (acres)	After (acres)
Constructed infiltration systems (infiltration basins/infiltration trenches/rainwater gardens/bioretention areas without underdrains/swales with impermeable check dams)	0	0
Constructed tree trenches and tree boxes	0	0
Constructed wetlands	0	0
Constructed green roofs	0	0
Constructed permeable pavements	0	0
Other (describe)	0	0
TOTAL*	**0**	**0**

[3] Blue Earth County. Blue Earth County Land Use Plan. 2018. Electronic document, https://www.blueearthcountymn.gov/DocumentCenter/View/4148/Approved-Land-Use-Plan---2018-, accessed October 2022.
[4] Blue Earth County 2018: 99.

Table 5: Trees

	Percent	Number
Percentage of tree canopy removed, or number of mature trees removed during development	0%	0
Number of new trees planted	TBD	TBD

9 Permits & Approvals Required

List all known local, state and federal permits, approvals, certifications and financial assistance for the project. Include modifications of any existing permits, governmental review of plans and all direct and indirect forms of public financial assistance including bond guarantees, Tax Increment Financing and infrastructure. All of these final decisions are prohibited until all appropriate environmental review has been completed. See Minnesota Rules, Chapter 4410.3100.

All known permits at state, federal, and local levels required for the Proposed Project are listed in **Table 6, "Required Permits & Approvals."**

Table 6: Required Permits & Approvals

Government Agency	Type of Application/Permit	Status
State Agencies		
Minnesota Pollution Control Agency	National Pollutant Discharge Elimination System (NPDES) Construction Storm Water Permit	To be applied for
	Sanitary Sewer Extension Permit	To be applied for
Minnesota Department of Health	Watermain Extension Permit	To be applied for
Minnesota Department of Natural Resources	Water Appropriations Permit	To be applied for, if necessary
Local Agencies		
City of Mankato / Mankato Township	Annexation Petition	To be applied for
City of Mankato	Preliminary & Final Plat Application	To be applied for
City of Mankato	Planned Unit Development / Conditional Use Permit	To be applied for
City of Mankato	Residential Building Permit	To be applied for

Table 6: Required Permits & Approvals

Government Agency	Type of Application/Permit	Status
City of Mankato	Grading/Excavating Permit	To be applied for
City of Mankato	MS4 Permit	To be applied for
City of Mankato	Wetland Mitigation Application	To be applied for

10 Land Use

a. Existing Land Use

Description

Existing land use of the site as well as areas adjacent to and near the site, including parks and open spaces, cemeteries, trails, prime or unique farmlands.

Existing land uses within and adjacent to the Study Area are detailed in **Figure 6, "Existing Land Use."** The approximately 105-acre Study Area is comprised of mostly out-of-production agricultural fields with some forested areas in the north, as well as 28.59 acres of wetlands located in the northeast section of the Study Area. A review of available historic aerial imagery reveals the land has been largely in agricultural production since at least the late 1930s, with portions of the current forested area present in the north part of the Study Area. There are no anticipated significant potential environmental hazards due to these past land uses within the Study Area.

The land uses directly adjacent to the site include residential homes, agricultural land, a wetland, a senior living facility, and forested areas. The Minnesota Department of Transportation District Headquarters and the Blue Earth County Justice Center/County Jail are located farther to the north. To the east, past a small piece of agricultural land, is a solar farm. The southern extent of the property is bordered by a forested area, followed by agricultural land for approximately a mile. To the west, past a senior living facility, there are multiple apartment complexes, a middle school, and the site of a future low-density residential development.

There are no existing roadways within the Study Area, but the project is connected to US Highway 14 and MN Highway 83 via County Highway 12. Downtown Mankato is located approximately three miles west of the Study Area.

As shown on **Figure 15, "Outdoor Recreation,"** no parks, open space, or outdoor recreational facilities are located within the Study Area.

Local Plans

Describe planned land use as identified in comprehensive plan (if available) and any other applicable plan for land use, water, or resources management by a local, regional, state, or federal agency.

The City of Mankato's *Land Use Plan* provides the city with a guide for the future development of public and private property within city limits while sustaining Mankato's natural and economic environments. The *Land Use Plan* aligns with State of Minnesota Statute 462.353 and acts as the city's Comprehensive Plan. As shown in **Figure 7, "Proposed Land Use,"** Mankato's *Land Use Plan* designates the area as Parks/Open Space, Mixed Residential/Retail, High-Density Residential, and Public-Semi Public. Pending approval of the environmental review process, the subject property would be guided as Parks/Open Space, Mixed Residential/Retail, High-Density Residential, and Medium-Density Residential—where it was previously guided at Public-Semi Public.

The goal of the Mixed Residential/Retail land use designation is to encourage and support alternative development patterns which allow for a mixture of uses for retail, residential, and office to co-exist in the same areas, within nodes or urban villages. The goal of the High-Density Residential designation is to promote low, medium, and high-density residential development which provides affordable and lifecycle housing. The goal of the Medium-Density Residential Designation is to promote low and medium-density residential development which provides affordable and lifecycle housing opportunities. The *Land Use Plan* does not include goals for the Public/Open Space designations or the Public-Semi Public designations.

According to the Blue Earth County Water Management Plan (2017-2026), portions of the project site—including the public water wetland and connected basin to the west—are identified as Planned Greenprint Corridor Connections. Greenprint areas are defined as existing natural connections in the landscape that facilitate movement of plants and animals between larger patches of habitat. The Greenprint Program is intended to bring natural resources to the forefront of planning and decision making. For more information on potential impacts and mitigation measures for natural resources and water resources within the Project Area, please refer to **Section 12, "Water Resources,"** and **Section 14, "Fish, Wildlife, Plant Communities, & Sensitive Ecological Resources (Rare Features)."**

In 2016, the City of Mankato published a revision to the Greater East Mankato Infill Service District Final Alternative Urban Areawide Review (AUAR) and Mitigation Plan. The Study Area for the AUAR includes the entirety of the Mesenbrink Mixed-Use Development Project Site. The City of Mankato has determined this AUAR is largely out of date for this area of development due to previous land use changes since 2016, which is one of the triggers for the required preparation of this EAW. Therefore, some information in the AUAR would not be accurate for this development. Additionally, because over five years have passed since the RGU adopted the most recent AUAR revision, the AUAR is no longer considered valid as a substitute form of review for the Project Site (*Minnesota Rules, Part 4410.3610.Subp.7.A).*

Additionally, the Proposed Project is located within the Le Sueur River Watershed. A draft One Watershed One Plan (1W1P) for the Le Sueur River Watershed is nearing completion as of the

publication of this EAW document. The RGU intends to coordinate with Blue Earth County and the Blue Earth Soil and Water Conservation District to ensure 1W1P planning principles are followed throughout the implementation of the Proposed Project.

Zoning

Zoning, including special districts or overlays such as shoreland, floodplain, wild and scenic rivers, critical area, agricultural preserves, etc.

The subject property is not currently classified under *Chapter 10, "Land Use (Zoning),"* of the *Mankato City Code*. The surrounding properties to the north, east, and south also lack zoning classifications. However, the parcels to the west of the subject property, across 586th Avenue, are classified as R-4: Multiple Dwelling. The purpose of this district is to provide for high-density residential development.

Pending approval of the environmental review process, the subject property will be given zoning classifications aligned with the proposed land uses. The western extent of the subject property is anticipated to be zoned B-1, "Community Business District"; the middle section of the Study Area is anticipated to be zoned R-4, "Multiple-Family Dwelling District"; and the eastern extent is anticipated to be zoned R-1, "One-Family Dwelling District." The B-1, "Community Business District," is designed to provide for a broad range of retail developments which are adjacent to residential areas. The R-4, "Multiple-Family Dwelling District," is intended to provide for high-density residential development. The R-1, "One-Family Dwelling District," is intended to provide for low-density residential development.

In November 2022, the Mankato City Council adopted *Ordinance No. O-2022-1114-16*, creating *Mankato City Code Chapter 10, Section 10.65, "Shoreland Overlay District."* Effective as of January 1, 2023, the purpose of this Ordinance is to guide the subdivision, use, and development of shorelands of public waters in Minnesota. As shown on **Figure 3, "Proposed Improvements,"** a portion of the Study Area is located within a Shoreland Overlay District, as defined in *Minnesota Rules, Parts 6120.2500 – 6120.3900*, as land located within 1,000 feet from the ordinary high water (OHW) level of a lake, pond, or flowage.

All local and State regulations—including a 150-foot setback from the OHW level of public waters, depicted on **Figure 3, "Proposed Improvements"**—related to Shoreland Overlay Districts would be followed throughout the implementation of the Proposed Project. The residential portions of the Proposed Project would be designated as a Planned Unit Development (PUD) overlay district.

The subject property is not identified as a Special Flood Hazard Area on the effective FEMA FIRM panel 2752310045D, dated March 5, 1990. Thus, the subject property is not located in a Floodway District, Flood Fridge District, or General Floodplain District, as defined by *Chapter 10, "Land Use (Zoning),"* of the *Mankato City Code*.

Critical Facilities

Describe any critical facilities (i.e. facilities necessary for public health and safety, those storing hazardous materials, or those with housing occupants who may be insufficiently mobile) that exist within or near the project area.

The subject property is surrounded by agricultural land or open space to the north, east, and south for approximately 1.5 miles. To the west, the subject property abuts a senior living facility. Past the facility, the area includes newly developed multiple-family dwellings, a middle school, and a planned low-density residential neighborhood. The Minnesota Department of Transportation District Headquarters and the Blue Earth County Justice Center/County Jail are located approximately half a mile northwest of the Study Area. The nearest hospital, the Mayo Clinic/Immanuel St. Joseph Hospital, is located approximately two miles northwest of the Study Area. The Study Area is located approximately one mile from Kennedy Elementary School, one-half mile from Prairie Winds Middle School, and one mile from Mankato East Senior High School. The Study Area connects to US Highway 14 and MN Highway 83 from County Highway 12. An existing 18-inch sanitary sewer line and 12-inch water main line connect to the Project Site at the intersection of County Highway 12 and Hoffman Road.

b. Project Compatibility

Discuss the project's compatibility with nearby land uses, zoning, and plans listed in Item 10a above, concentrating on implications for environmental effects.

The Proposed Project is generally consistent with the City of Mankato's approved land use and zoning plans. The goal of the Mesenbrink Mixed-Use Development Project is to provide area residents with a variety of housing options near a variety of retail and daily service destinations. This goal aligns well with the goals of the applicable land use and zoning classifications within the Study Area. The project will also include the construction of five small stormwater ponds.

c. Project Incompatibility

Identify measures incorporated into the proposed project to mitigate any potential incompatibility as discussed in Item 10b above.

The eastern half of the Study Area is designated as Parks/Open Space in the north and Public/Semi-Public in the south in the Mankato Land Use Plan. According to the City's *Land Use Plan*, the Public/Semi-Public designation encompasses a wide spectrum of uses including government entities, churches, schools, hospitals, non-profit organizations, institutions, and universities. This is currently incompatible with the Proposed Project's intention to use this space as a site for single-family residential development. To mitigate this incompatibility, the project team will amend the City's *Land Use Plan* to change the designation of the subject property from Public/Semi-Public to Medium-Density Residential, pending approval of the Proposed Project's environmental review process. The goal of the Medium-Density Residential Designation is to promote low and medium-density residential development which provides affordable and lifecycle housing opportunities. The goal of this land use designation aligns with the Proposed Project and future zoning classifications.

11 Geology, Soils, & Topography/Land Forms

a. Geology

Describe the geology underlying the project area and identify and map any susceptible geologic features such as sinkholes, shallow limestone formations, unconfined/shallow aquifers, or karst conditions. Discuss any limitations of these features for the project and any effects the project could have on these features. Identify any project designs or mitigation measures to address effects to geologic features.

The Study Area is located within the Des Moines lobe glacial drift. According to the Blue Earth County Geological Atlas (2011, 2016), glacial drift deposits range in thickness from slightly less than 150 feet to over 300 feet. No geological site hazards to groundwater are known to occur within the Study Area. Sinkholes, unconfined/shallow aquifers, and shallow limestone bedrock are not known to exist within the Study Area. The nearest areas prone to surface karst feature development are located approximately three miles northwest of the Study Area, near the Minnesota River valley, and south of the Study Area, near the Le Sueur River. There are no wells identified within the Study Area. Local wells finished in the glacial drift portion of the geology near the Study Area were drilled from 208 feet to 234 feet in depth. Unique well record # 463783, located just east of the site, is finished in the Prairie Du Chien & Jordan Sandstone bedrock units. Additionally, a gas dome well boring located just southwest of the Study Area was drilled to 605 feet.

b. Soils & Topography

Describe the soils on the site, giving NRCS (SCS) classifications and descriptions, including limitations of soils. Describe topography, any special site conditions relating to erosion potential, soil stability or other soils limitations, such as steep slopes, highly permeable soils. Provide estimated volume and acreage of soil excavation and/or grading. Discuss impacts from project activities (distinguish between construction and operational activities) related to soils and topography. Identify measures during and after project construction to address soil limitations including stabilization, soil corrections or other measures. Erosion/sedimentation control related to stormwater runoff should be addressed in response to Item 12.b.ii.

According to the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) *Web Soil Survey*, there are nine soil classification types located within the Study Area, detailed in **Table 7, "NRCS Soil Classifications within Study Area,"** and **Figure 8, "Soils."** The area surrounding the Study Area contains largely similar soil types, though not all are redundant.

Table 7: NRCS Soil Classifications within Study Area

Percent of Study Area	Map Unit Symbol	Map Unit Name	Drainage Class	Hydrologic Soil Group	Wind Erodibility Group	K Factor, Whole Soil	NRCS Depth To Ground Water
31.7%	109	Cordova clay loam, 0 to 2 percent slopes	Poorly Drained	C / D	6	0.28	0"

Percent of Study Area	Map Unit Symbol	Map Unit Name	Drainage Class	Hydrologic Soil Group	Wind Erodibility Group	K Factor, Whole Soil	NRCS Depth To Ground Water
25.0%	110	Marna silty clay loam, 0 to 2 percent slopes	Poorly Drained	C / D	4	0.32	0”
10.2%	287	Minnetonka silty clay loam	Poorly Drained	C / D	6	0.32	6”
8.6%	539	Klossner muck, lake plain depressional, 0 to 1 percent slopes	Very Poorly Drained	C / D	2	-	0”
8.4%	525	Muskego soils, 0 to 1 percent slopes	Very Poorly Drained	C / D	2	-	0”
5.7%	239	Le Sueur loam, 1 to 3 percent slopes	Somewhat Poorly Drained	C / D	6	0.28	18”
4.4%	286	Shorewood silty clay loam, 1 to 6 percent slopes	Moderately Well Drained	C / D	6	0.28	18”
4.1%	211	Lura silty clay, 0 to 1 percent slopes	Very Poorly Drained	C / D	4	0.28	0”
2.0%	114	Glencoe silty clay loam, 0 to 1 percent slopes	Very Poorly Drained	C / D	6	0.28	0”

NRCS classifies soils into hydrologic soil groups, A through D. Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms. NRCS definitions by hydrologic soil group are below.

- Group A – Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands.
- Group B – Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately course texture.
- Group C – Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture.
- Group D – Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays with high swelling potential, soils with a permanent high-water table, soils with a claypan or clay layer at or near the surface, and shallow soils over nearly impervious material.

- If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Table 7 shows that the Study Area is primarily comprised of hydrologic soil groups. Soils in the C or C/D category may require additional artificial drainage measures.

Erodibility of soils within the Study Area is also noted in **Table 7**. For Wind Erodibility Group, those soils that are most susceptible to wind erosion have a rating of 1 while those that are least susceptible have a rating of 8. Within the Study Area, the majority of soils are rating 4 or above, indicating moderate wind erodibility. The K Factor, Whole Soil, rating is based upon the percentages of silt, sand, and organic matter within a given soil structure, modified by the presence of rock fragments. Values range from 0.02 to 0.69, with higher values indicating greater susceptibility of soils to sheet and rill erosion by water. The majority of soils within the Study Area are rated 0.28, indicating minimal water erosion susceptibility of these soils.

The Study Area is largely flat, with the northern end of the Study Area at a slightly higher elevation than the southern end. There are no steep slopes located within the Study Area.

As required by the NPDES permit, mitigation measures related to the preservation of existing soil conditions within the Study Area will be followed as part of the Proposed Project, including but not limited to:

- Construction phasing where possible to limit the amount of exposed soils.
- Soil stabilization in areas where construction activities are halted for 14 days or more.
- Stabilize exposed soils within 24 hours where the portion of the side drains to a public water.

For additional discussion of NPDES permitting requirements and erosion/sedimentation control related to stormwater runoff, please refer to **Section 12, "Water Resources."**

12 Water Resources

a. Surface Water & Groundwater Features

Describe surface water and groundwater features on or near the site in a.i and a.ii below.

i. Surface Water

Describe lakes, streams, wetlands, intermittent channels, and county/judicial ditches. Include any special designations such as public waters, shoreland classification and floodway/floodplain, trout stream/lake, wildlife lakes, migratory waterfowl feeding/resting lake, and outstanding resource value water. Include the presence of aquatic invasive species and the water quality impairments or special designations listed on the current MPCA 303d Impaired Waters List that are within 1 mile of the project. Include DNR Public Waters Inventory number(s), if any.

Public Waters – One Mile Search Area

Surface waters located within and adjacent to the Study Area are depicted on **Figure 10, "Surface Waters."** The Study Area is located within the Le Sueur River major watershed (HUC8: 07020011).

Portions of the site include:

- Unnamed Public Water Stream flowing to the Le Sueur River – PWI Number 7-23a
- Unnamed Public Water Wetland – DNR Basin ID: 7-71
- Unnamed Public Water Wetland – DNR Basin ID: 7-73

As shown on **Figure 3, "Proposed Improvements,"** a portion of the Study Area is located within a Shoreland Overlay District, as defined in *Minnesota Rules, Parts 6120.2500 – 6120.3900*, as land located within 1,000 feet from the ordinary high water (OHW) level of a lake, pond, or flowage.

Wetlands

A wetland delineation, approved by the Local Government Unit on February 22, 2022, identified 11 wetlands within the Study Area, totaling 28.59 acres. The approved wetland delineation report is included in **Appendix B, "Additional Assessments."** The following delineated wetlands were identified within the Study Area:

- Basin 1 (21.50 Acres) is a shallow open water community with fringing wetlands located in the northern part of the property which is listed as an Unnamed Public Water Wetland – DNR Basin ID: 7-71
- Basin 2 (0.07 Acres) is a seasonally flooded basin located along the western edge of the property
- Basin 3 (1.63 Acres) is a seasonally flooded basin located along the western edge of the property
- Basin 4 (0.33 Acres) is a seasonally flooded basin located along the western edge of the property
- Basin 5 (0.27 Acres) is a seasonally flooded basin located along the western edge of the property
- Basin 6 (0.62 Acres) is a seasonally flooded basin located along the western edge of the property
- Basin 7 (0.33 Acres) is a seasonally flooded basin located along the western edge of the property
- Basin 8 (0.15 Acres) is a seasonally flooded basin located along the western edge of the property
- Basin 9 (1.71 Acres) is a seasonally flooded basin located along the western edge of the property
- Basin 10 (1.30 Acres) is a seasonally flooded basin located along the western edge of the property
- Basin 12 (0.12 Acres) is a seasonally flooded basin located along the western edge of the property
- Basin 15 (0.58 Acres) is a seasonally flooded basin located along the western edge of the property

ii. Ground Water

Describe aquifers, springs, seeps. Include: 1) depth to groundwater; 2) if project is within a MDH wellhead protection area; 3) identification of any onsite and/or nearby wells, including unique numbers and well logs if available. If there are no wells known on site or nearby, explain the methodology used to determine this.

Groundwater data for the Study Area was obtained from MnDNR and Blue Earth County. The Proposed Project is located within the Shakopee (Prairie du Chien Group) aquifer formation and the Oneota Dolomite (Prairie du Chien) aquitard formation.

According to the MnDNR *Spring Inventory*, no springs are identified within the Study Area. Depth to groundwater within the Study Area is generally 0-10 feet and would be dependent on soil type and recent rainfall. Soil borings will likely be performed later during project development which will provide more accurate groundwater depths. The Proposed Project lies on the eastern edge of the City of Mankato's Surface Water DWSMA for their Ranney Collector wells.

There are no existing domestic wells onsite, however, as detailed on **Figure 9, "Geologic Conditions & Groundwater,"** there are several wells located on properties adjacent to the Study Area. Any unexpected wells encountered during the construction of the Proposed Project will be sealed in accordance with the requirements of the Minnesota Department of Health. The Unique Well ID's near the project area are 682283, 463783, 154684, 798807, 752412, 591707, 624302, and 213687. Well logs are provided as an attachment to this EAW document. These nearby wells are finished in the drift (QBAA), Prairie Du Chien Limestone (OPCJ), & multiple aquifers (MTPL).

b. Project Effects & Mitigations

Describe effects from project activities on water resources and measures to minimize or mitigate the effects in Item b.i. through Item b.iv. below.

i. Wastewater

For each of the following, describe the sources, quantities and composition of all sanitary, municipal/domestic and industrial wastewater produced or treated at the site.

1. *If the wastewater discharge is to a publicly owned treatment facility, identify any pretreatment measures and the ability of the facility to handle the added water and waste loadings, including any effects on, or required expansion of, municipal wastewater infrastructure.*

The Proposed Project would require the extension of City of Mankato sanitary sewer infrastructure from a planned connection point at the intersection of Hoffman Road and Blue Earth County CSAH 12. The sanitary sewer is sized to account for this development along with future development to the east. Wastewater would primarily be generated by single-family homes and apartment buildings, as well as a convenience store, car wash, and additional commercial facilities.

No wastewater treatment would be conducted on site. Wastewater would be collected in the extended sanitary sewer and routed to the Mankato Wastewater Reclamation Facility (WWRF). The Mankato WWRF currently has enough capacity to accommodate the Proposed Project, and also may be expanded during the life of the Proposed Project.

Wastewater generated by the Proposed Project was determined by the following:

- 112 single-family homes: 100 gal/capita/day, 3-person occupancy = **33,600 gallons/day**
- 713 apartments: 100 gal/capita/day, 2.7-person avg. occupancy = **192,510 gallons/day**
- Convenience Store: **assumed 1,000 gallons/day**
- Car Wash: **assumed 3,500 gallons/day**
- Retail Stores: assumed 8 stores with 200 gal/store/day = **1,600 gallons/day**
- Total estimated wastewater = **232,210 gallons/day**

A Minnesota Pollution Control Agency (MPCA) Sanitary Sewer Extension Permit would be obtained prior to the construction of the Proposed Project.

2. *If the wastewater discharge is to a subsurface sewage treatment systems (SSTS), describe the system used, the design flow, and suitability of site conditions for such a system. If septic systems are a part of the project, describe the availability of septage disposal options within the region to handle the ongoing amounts generated as a result of the project. Consider the effects of current Minnesota climate trends and anticipated changes in rainfall frequency, intensity and amount with this discussion.*

Wastewater generated by the Proposed Project would be routed to the Mankato WWRF via sanitary sewer.

3. *If the wastewater discharge is to surface water, identify the wastewater treatment methods and identify discharge points and proposed effluent limitations to mitigate impacts. Discuss any effects to surface or groundwater from wastewater discharges, taking into consideration how current Minnesota climate trends and anticipated climate change in the general location of the project may influence the effects.*

Wastewater generated by the Proposed Project would be routed to the Mankato WWRF via sanitary sewer. The WWRF will treat sewage prior to discharge.

ii. Stormwater

Describe the changes in surface hydrology resulting from change of land cover. Describe the routes and receiving water bodies for runoff from the project site (major downstream water bodies as well as the immediate receiving waters). Discuss environmental effects from stormwater discharges on receiving waters post construction including how the project will affect runoff volume, discharge rate and change in pollutants. Consider the effects of current Minnesota climate trends and anticipated changes in rainfall frequency, intensity and amount with this discussion. For projects requiring NPDES/SDS Construction Stormwater permit coverage, state the total number of acres that will be disturbed by the project and describe the stormwater pollution prevention plan (SWPPP), including specific best management practices to address soil erosion and sedimentation during and after project construction. Discuss permanent stormwater management plans, including methods of achieving volume reduction to restore or maintain the natural hydrology of the site using green infrastructure practices or other stormwater management practices. Identify any receiving waters that have constructed-related water impairments or are

classified as special as defined in the Construction Stormwater permit. Describe additional requirements for special and/or impaired waters.

Stormwater Quantity and Quality

The developable portions of the Study Area are currently used for row-crop agriculture. The Proposed Project would alter the landscape and hydrologic conditions of the site through changing the land use with the construction of streets, buildings, sidewalks, and driveways. It is anticipated that approximately 30 acres of new impervious area would be generated within the Study Area. Runoff from the Proposed Project would be collected into storm sewer pipes and routed to onsite stormwater management areas to remove pollutants such as total suspended solids (TSS), total phosphorus (TP), and regulate discharge rates leaving the property to at or below existing conditions. Design efforts will be utilized to apply best management practices for reduction of deicers and optimizing snow management while complying to the City of Mankato design criteria. Stormwater management features, roadways, and general site layout will be graded in a manner to mitigate detrimental effects of possible flooding while adhering to the City of Mankato Grading Manual.

Soil conditions and depth to groundwater make constructing volume control stormwater best management practices (BMPs) infeasible. To meet City and State stormwater management requirements, multiple wet sedimentation basins are proposed. Smaller wet sedimentation basins would be constructed in available green spaces near the proposed apartment units and the single-family homes, with one large regional wet sedimentation basin designed to manage and treat any remainder runoff needed to meet regulations. Where land and grades permit, filtration basin stormwater designs will be considered first before wet sedimentation basin designs.

The project would meet or exceed the City of Mankato's *City Ordinances* which are based on State MS4 requirements and the MPCA's NPDES Construction Stormwater Permit.

In-depth stormwater modeling, calculations, and a stormwater management plan will be developed in accordance with the requirements of the City of Mankato and any other Authorities Having Jurisdiction prior to project approval. The proposed development design and associated stormwater management plan will meet all applicable local, state, and federal regulations including, but not limited to, the MPCA NPDES Construction Stormwater Permit, the City of Mankato MS4 Permit, and the City of Mankato Grading Manual. These documents require the proposed development compared to the existing conditions to: not increase discharge rates, not increase total suspended sediments (TSS), not increase total phosphorus (TP), and where soils permit, retain 1.1 inches of runoff from all new and reconstructed impervious surfaces.

Runoff Routes

The existing property is relatively flat with small pocket depressions that store runoff on the landscape. In general, runoff from the property travels north to a large unnamed public water wetland. The outlet for this wetland is County Ditch 12, which routes around the property to the south and ultimately discharges into the Le Sueur River.

The Proposed Project would maintain the general existing conditions characteristics and patterns with the majority of the collected runoff in the property discharging to the same unnamed public water

wetland to the north. For areas draining directly to the unnamed public water wetland, converting what is row-crop agriculture today to turf will reduce pollutant loads including total suspended solids (TSS). Existing drainage patterns are shown on **Figure 11, "Existing Drainage Patterns,"** and proposed drainage patterns are shown on **Figure 12, "Proposed Drainage Patterns."**

Stormwater Controls

The construction plan will include: an erosion and sediment control plan, a turf establishment plan and a Stormwater Pollution Prevention Plan (SWPPP). Stormwater control measures would include standard erosion control best management practices including but not limited to silt fences, rock construction entrances, temporary sedimentation basins, inlet protections and any requirements outlined in the City grading permit and the MPCA NPDES Construction Stormwater Permit.

Grading activities will be phased to minimize any erosion that may occur during an unexpected rainfall event. Maximum efforts will be incorporated during construction and post-construction to reduce erosion and protect water quality to the downstream receiving water bodies.

iii. Water Appropriation

Describe if the project proposes to appropriate surface or groundwater (including dewatering). Describe the source, quantity, duration, use and purpose of the water use and if a DNR water appropriation permit is required. Describe any well abandonment. If connecting to an existing municipal water supply, identify the wells to be used as a water source and any effects on, or required expansion of, municipal water infrastructure. Discuss environmental effects from water appropriation, including an assessment of the water resources available for appropriation. Discuss how the proposed water use is resilient in the event of changes in total precipitation, large precipitation events, drought, increased temperatures, variable surface water flows and elevations, and longer growing seasons. Identify any measures to avoid, minimize, or mitigate environmental effects from the water appropriation. Describe contingency plans should the appropriation volume increase beyond infrastructure capacity or water supply for the project diminish in quantity or quality, such as reuse of water, connections with another water source, or emergency connections.

The Proposed Project would require the extension of City of Mankato watermain from a planned connection point at Hoffman Road and Blue Earth County CSAH 12. The watermain is sized to account for this development and future development to the east. A Minnesota Department of Health permit is required for the watermain installation and would be obtained prior to construction. Water flow and pressure will be adequate for the Proposed Project.

An estimate of daily water use was determined with the following criteria:

- Total estimated wastewater = **232,210 gallons/day** which is expected to be the same as water use
- Irrigation basis – as suggested by City of Mankato staff: If a person has an average of 8 zones in their yard and waters each zone 15 minutes per zone, they will use 2,880 gallons per week or 11,520 gallons per month. 11,520/30 days per month = 384 gallons per house per day of water.

This can be reduced to approximately 6 months out of the year in Minnesota which yields 192 gal/day normalized.
    - 112 single-family homes = **21,504 gallons/day**
    - The multi-family and commercial area contains approximately 1/3 the green space as the single-family home area. Therefore, it can be approximated that this area would require **7,168 gallons/day**
- Total estimated water use is 260,882 gallons/day

It is not anticipated that the project will require dewatering activities. A MnDNR Water Appropriations permit would be obtained prior to construction if it is determined that dewatering activities are required.

iv. Surface Waters

1. *Wetlands- Describe any anticipated physical effects or alterations to wetland features such as draining, filling, permanent inundation, dredging and vegetative removal. Discuss direct and indirect environmental effects from physical modification of wetlands, including the anticipated effects that any proposed wetland alterations may have to the host watershed, taking into consideration how current Minnesota climate trends and anticipated climate change in the general location of the project may influence the effects. Identify measures to avoid (e.g., available alternatives that were considered), minimize, or mitigate environmental effects to wetlands. Discuss whether any required compensatory wetland mitigation for unavoidable wetland impacts will occur in the same minor or major watershed, and identify those probable locations.*

Wetlands

Delineated Wetlands

Impacts to Basin 1, a Public Water Wetland, would be avoided, and a 150-foot setback would be maintained from the OHW of the wetland. All other wetlands are considered isolated and heavily degraded as a result of agricultural activities. These wetlands would be completely filled to allow for development.

Permitting and Sequencing Information

All wetland impacts would be properly permitted through the MNDNR, Wetland Conservation Act of Minnesota (WCA) and Section 404 of the Clean Water Act (CWA). A sequencing analysis is required as part of this permitting process. The only wetland under the jurisdiction of the MNDNR and CWA is Basin 1. No impacts to this basin are anticipated. Therefore, no sequencing analysis is necessary.

The remaining eleven wetlands are only under the jurisdiction of the WCA. Historically, these wetlands have been in crop rotation and have been heavily degraded by the removal of wetland hydrology and hydrophytic plant communities. Due to the degradation that has occurred, these wetlands are eligible for sequencing flexibility. MN Rule 8420.0520, Subpart 7a.A.1, allows for flexibility in sequencing if the wetlands to be impacted have been degraded to the point where replacement of it would result in a

certain gain in functional and public value. There are several highly functional wetland banks in the Le Sueur River watershed with available wetland credit. Impacts to wetlands as a result of this project would be mitigated for within the same major watershed, allowing a functional lift to the watershed.

2. *Other Surface Waters- Describe any anticipated physical effects or alterations to surface water features (lakes, streams, ponds, intermittent channels, county/judicial ditches) such as draining, filling, permanent inundation, dredging, diking, stream diversion, impoundment, aquatic plant removal and riparian alteration. Discuss direct and indirect environmental effects from physical modification of water features, taking into consideration how current Minnesota climate trends and anticipated climate change in the general location of the project may influence the effects. Identify measures to avoid, minimize, or mitigate environmental effects to surface water features, including in-water Best Management Practices that are proposed to avoid or minimize turbidity/sedimentation while physically altering the water features. Discuss how the project will change the number or type of watercraft on any water body, including current and projected watercraft usage.*

All local and State regulations—including a 150-foot setback from the OHW level of public waters, depicted on **Figure 3, "Proposed Improvements"**—related to Shoreland Overlay Districts would be followed throughout the implementation of the Proposed Project. Direct or indirect adverse impacts to other surface water features are not anticipated to occur as a result of the Proposed Project.

13 Contamination/Hazardous Materials/Wastes

a. Pre-project Site Conditions

Describe existing contamination or potential environmental hazardson or in close proximity to the project site such as soil or ground water contamination, abandoned dumps, closed landfills, existing or abandoned storage tanks, and hazardous liquid or gas pipelines. Discuss any potential environmental effects from pre-project site conditions that would be caused or exacerbated by project construction and operation. Identify measures to avoid, minimize or mitigate adverse effects from existing contamination or potential environmental hazards. Include development of a Contingency Plan or Response Action Plan.

The MPCA's *What's in My Neighborhood* mapper identified 28 potentially contaminated sites located within a one-mile radius of the Study Area, detailed in **Table 8, "MPCA "What's in My Neighborhood" Sites within a One-Mile Radius".** As shown in **Figure 13, "MPCA WIMN,"** none of these sites are located within the Study Area. None of these sites pose a significant threat or impact to the Proposed Project.

Table 8: MPCA "What's in My Neighborhood" Sites within a One-Mile Radius

Site ID	Site Name	Program Name List	Distance from Site (Meters)
220708	Pillars of Mankato	Hazardous Waste; Stormwater	64

Site ID	Site Name	Program Name List	Distance from Site (Meters)
225332	Kwik Trip #1011	Stormwater; Tanks	579
89963	Mankato TACC	Hazardous Waste	619
123973	Blue Earth County Justice Center	Hazardous Waste; Stormwater	646
105806	MCHS Eastridge Clinic	Hazardous Waste	646
151637	Prairie Winds Middle School	Stormwater; Tanks	798
220913	Northern Natural Gas - M460B Hwy 83 Rplc	Hazardous Waste	799
46666	Nelson Cabinetry	Hazardous Waste	811
148864	Toppers Plus	Hazardous Waste	1,025
133941	58967 Madison Avenue	Hazardous Waste	1,030
128983	Mankato Ford LLC	Air Quality; Hazardous Waste; Investigation and Cleanup; Tanks	1,163
250733	ULTA Beauty #1660	Hazardous Waste	1,182
121122	59175 Madison Avenue	Hazardous Waste	1,315
76119	Walmart Supercenter 1473	Hazardous Waste; Stormwater	1,332
143225	PETCO Store 1655	Hazardous Waste	1,372
139017	Michael's Store 2729	Hazardous Waste	1,372
222562	Sally Beauty Supply #2996	Hazardous Waste	1,373
95221	Snell Collision Center	Air Quality; Hazardous Waste; Tanks	1,452
41670	Wellner Auto Clinic Inc	Hazardous Waste	1,454
47119	Alltel Retail Store	Hazardous Waste	1,529
105623	Oasis Market #5116	Investigation and Cleanup; Tanks	1,628
196526	Former Twin Cities Avanti Store 5116	Investigation and Cleanup	1,628

Site ID	Site Name	Program Name List	Distance from Site (Meters)
216556	Shopko 021 - Pharmacy	Hazardous Waste	1,646
49011	Shopko 021	Hazardous Waste	1,646
91172	Auto Tech N Tire Inc	Hazardous Waste	1,666
46519	Sam's Club 6510	Hazardous Waste; Tanks	1,687
42568	AutoZone 3159	Hazardous Waste	1,716
129251	Circle K Store 2746704	Tanks	1,732

The Project Site is bisected by one major gas pipeline that travels north and south through the site. The Proposed Project was designed to accommodate for the location of the pipeline, There are no known past or potential environmental concerns related to this pipeline, and no impacts related to the pipeline are anticipated.

b. Project Related Generation/Storage of Solid Wastes

Describe solid wastes generated/stored during construction and/or operation of the project. Indicate method of disposal. Discuss potential environmental effects from solid waste handling, storage and disposal. Identify measures to avoid, minimize or mitigate adverse effects from the generation/storage of solidwaste including source reduction and recycling.

Construction activities for this development would generate substantial waste. The amount of waste is anticipated to be representative of construction projects of this size and scope. The contractors would dispose of any wastes generated in an approved method and/or to an approved facility. The contractors will be encouraged to recycle as many construction materials as feasible. All brush and tree waste generated on site would be chipped or otherwise disposed of and will not be burned on site.

Typical municipal commercial and residential solid waste is anticipated to be generated throughout the life of the Proposed Project. All solid waste materials would be handled through licensed solid waste haulers. Numerous agencies and organizations offer best management practices to avoid or minimize waste generation through reuse and recycling activities or by encouraging sustainable purchasing practices to reduce impacts. Local businesses will be encouraged to participate in these practices and take advantage of available resources.

c. Project Related Use/Storage of Hazardous Materials

Describe chemicals/hazardous materials used/stored during construction and/or operation of the project including method of storage. Indicate the number, location and size of any new above or below ground tanks to store petroleum or other materials. Indicate the number, location, size and

age of existing tanks on the property that the project will use. Discuss potential environmental effects from accidental spill or release of hazardous materials. Identify measures to avoid, minimize or mitigate adverseeffects from the use/storage of chemicals/hazardous materials including source reduction and recycling. Include development of a spill prevention plan.

Fuels and oils typical for the operation of construction equipment would be delivered but not stored on site. Building products used for home and facility construction will be used, stored, and disposed of in accordance with all State and local regulations.

No previous environmental hazards have been identified on the proposed development site. Normal construction, household, and commercial hazardous wastes are anticipated. Toxic or hazardous materials, such as fuel for construction equipment and materials used in the construction of homes and facilities (paint, adhesives, stains, acids, bases, etc.) would likely be used during site preparation and construction. Spills of these materials are not anticipated but could require notification of the Minnesota Duty Officer if a significant spill occurs. Builders and contractors are responsible for proper management and disposal of any wastes brought or generated on site. During construction, any toxic or hazardous materials would be properly used, stored and disposed of when finished.

d. Project Related Generation/Storage of Hazardous Wastes

Describe hazardous wastes generated/stored during construction and/or operation of the project. Indicate method of disposal. Discuss potential environmental effects from hazardous waste handling, storage, anddisposal. Identify measures to avoid, minimize or mitigate adverse effects from the generation/storage of hazardous waste including source reduction and recycling.

Please refer to **Section 13b** and **Section 13c**.

14 Fish, Wildlife, Plant Communities, & Sensitive Ecological Resources (Rare Features)

a. Resources/Habitats/Vegetation

Describe fish and wildlife resources as well as habitats and vegetation on or near the site.

The approximately 105-acre Study Area is primarily comprised of agricultural fields with some forested areas in the north and 28.59 acres of wetland in the northeast portion of the subject property. A review of available historic aerial imagery reveals the land has been largely in agricultural production since at least the late 1930s, with portions of the current forested area present in the north part of the Study Area.

Wildlife species typically associated with habitat of the type and quality present include white-tailed deer, raccoons, coyote, turkey, squirrel, other small rodents, and birds common to the area. Wildlife populations that temporarily use the agricultural and forested areas within the Study Area for cover may

be temporarily displaced during the construction of the Proposed Project, however these wildlife species are anticipated to relocate to other nearby habitat in the area until construction is complete.

b. Rare Features

*Describe rare features such as state-listed (endangered, threatened or special concern) species, native plant communities, Minnesota County Biological Survey Sites of Biodiversity Significance, andother sensitive ecological resources on or within close proximity to the site. Provide the license agreement number (LA-____) and/or correspondence number (ERDB **20170450**) from which the data were obtained and attach the Natural Heritage letter from the DNR. Indicate if any additional habitat or species survey work has been conducted within the site and describe the results.*

The Proposed Project was submitted to the Minnesota Department of Natural Resources (MnDNR) Division of Ecological & Water Resources for Natural Heritage Information System (NHIS) review on September 15, 2022. NHIS review determined that the Proposed Project would not negatively affect any known occurrences of State-listed rare features. For more information, please refer to the Natural Heritage Letter and Project Report (MCE #2022-00619; received on September 15, 2022), which are included in **Appendix C, "Agency Coordination."**

Additionally, the United States Fish and Wildlife Service's (USFWS) online Information for Planning and Consultation (IPaC) tool identified one Federally-listed endangered species (Northern Long-Eared Bat), one candidate species (Monarch Butterfly), and one migratory bird (Bald Eagle) that may be located within the Study Area. The USFWS IPaC Official Species List (generated on September 15, 2022) is included in **Appendix C, "Agency Coordination."**

The MnDNR maintains a list of townships within Minnesota that contain documented Northern Long-Eared Bat (NLEB) maternity roost trees and/or hibernacula.[5] As of June 7, 2021, there are no identified NLEB trees or hibernacula located within Blue Earth County. Although no NLEB trees or hibernacula have been documented within Blue Earth County, there is potential for the species to be found throughout Minnesota. NLEBs hibernate in caves or mines during the winter (November to March) and roost in forest and woodland habitats during the active season (April to October). Tree removal can negatively impact bats by destroying roosting habitat, especially during the pup rearing season when females are forming maternity roosting colonies and the pups cannot yet fly. To minimize these potential impacts, the DNR recommends that tree removal be avoided during the months of June and July.

As shown on **Figure 14, "Biotic Resources,"** the Study Area is located within a Rusty Patched Bumble Bee Low Potential Zone. Low Potential Zones represent areas where Rusty Patched Bumble Bees are not likely to be present.

[5] 2022. Townships Containing Documented Northern Long-Eared Bat (NLEB) Maternity Roost Trees and/or Hibernacula Entrances in Minnesota. MnDNR Website. Electronic resource: https://files.dnr.state.mn.us/eco/ereview/minnesota_nleb_township_list_and_map.pdf, accessed October 2022.

No other Federally-listed endangered species, critical habitats, refuge lands, or fish hatcheries were identified within the Study Area. For more information, please refer to the USFWS IPaC Official Species List (generated on September 15, 2022), which is included in **Appendix C, "Additional Assessments."**

c. Project Effects

Discuss how the identified fish, wildlife, plant communities, rare features and ecosystems may be affected by the project including how current Minnesota climate trends and anticipated climate change in the general location of the project may influence the effects. Include a discussion on introduction and spread of invasive species from the project construction and operation. Separatelydiscuss effects to known threatened and endangered species.

As discussed in **Section 14b, "Rare Features,"** no State-listed threatened species, endangered species, species of special concern, or rare features were identified within the Study Area. Thus, no adverse impacts to these communities are anticipated as a result of the Proposed Project.

The primary impact that would occur as a result of the implementation of the Proposed Project is loss of habitat, primarily food and cover resources, and habitat fragmentation. The Study Area may currently serve as a corridor for wildlife species. This corridor would be temporarily impacted during construction activities. However, after the conclusion of construction activities, wildlife may continue to use the area to move from one location to another.

The project is not anticipated to have the potential to spread or introduce invasive species. The contractor will be required to control the State-listed noxious weeds.[6] The contractor will follow best management practices (BMPs) to control and appropriately manage any invasive species. Removed soil will remain on site and will not be transported to other areas. Construction vehicles that may come into contact with invasive species will be checked and washed on site prior to leaving the work area to minimize any spread of invasive species. Reseeding and landscaping material will be free of invasive plants or plant parts. The project will also minimize disturbance of the surrounding roadside and vegetation.

d. Control Measures

Identify measures that will be taken to avoid, minimize, or mitigate the adverse effects to fish, wildlife, plant communities, ecosystems, and sensitive ecological resources.

The City of Mankato will coordinate with the Developer to ensure that construction activities incorporate mitigation measures to minimize risk to plant and wildlife species.

Additionally, the following mitigation measures will be implemented to reduce impacts to the wetland habitat located in the northern portion of the Study Area:

- Do not park equipment or stockpile supplies in the area of the PWI

[6] 2022. Minnesota Noxious Weed List. Minnesota Department of Agriculture (MDA) website. Electronic webpage: https://www.mda.state.mn.us/plants-insects/minnesota-noxious-weed-list, accessed October 2022.

- Inspect and clean all equipment prior to bringing it to the site to prevent the introduction and spread of invasive species
- As soon as possible after construction, revegetate disturbed soil with native species suitable to the local habitat
- Use only weed-free mulches, topsoils, and seed mixes
- Ideally do not bring in topsoil
- Developer will follow all erosion and sediment control requirements throughout the construction process and will be in compliance with the NPDES Stormwater Permit, especially in proximity to the PWI

Mitigation measures related to the introduction and spread of invasive species are discussed in **Section 14c, "Project Effects."**

15 Historic Properties

Describe any historic structures, archeological sites, and/or traditional cultural properties on or in close proximity to the site. Include: 1) historic designations, 2) known artifact areas, and 3) architectural features. Attach letter received from the State Historic Preservation Office (SHPO). Discuss any anticipated effects to historic properties during project construction and operation. Identify measures that will be taken to avoid, minimize, or mitigate adverse effects to historic properties.

A file search of the State Historic Preservation Office (SHPO) and the Office of the State Archaeologist (OSA) databases was conducted to identify all known archaeological, historical, architectural, or traditional cultural properties that have the potential to be impacted by the Proposed Project. As part of early agency coordination efforts, a request for project review was submitted to SHPO on September 14, 2022. A response to this request was received on October 12, 2022. In its review of the Proposed Project, SHPO concluded that "there are no properties listed in the National or State Registers of Historic Places and no known or suspected archaeological properties in the area that will be affected by this project."[7]

No previously recorded or unconfirmed (alpha) archaeological sites are located within or directly adjacent to the Study Area.

There are no National Register of Historic Places (NRHP)-listed historic properties within one mile of the Study Area. However, according to SHPO files, there are 6 previously inventoried historic properties within the one-mile search radius. None of these properties are within or immediately adjacent to the Study Area. There is not anticipated to be any effect on any of these properties.

[7] SHPO Letter 2022-2791. RE: Mesenbrink Residential Development. Electronic Correspondence, dated October 12, 2022.

16 Visual

Describe any scenic views or vistas on or near the project site. Describe any project related visual effects such as vapor plumes or glare from intense lights. Discuss the potential visual effects from the project. Identify any measures to avoid, minimize, or mitigate visual effects.

The current visual expanse includes views of the surrounding agricultural, forested, and wetland areas. Visual impacts to the site will include removal of vegetation and construction of the residential facilities, interior roadway and surface parking lot areas, and the construction of infiltration pond features. This constitutes urban growth and will change the rural views of this location, but the surrounding wetlands to the north, agricultural land to the east, and forested and agricultural land to the south will not be affected by construction.

During construction activities, this land-use change will be pronounced with grading and excavation activities. Additional visual impacts are anticipated to include construction equipment and hauling vehicles to and from the site. Occasional dust plumes are anticipated as minimal due to exercised dust control measures.

17 Air

a. Stationary Source Emissions

Describe the type, sources, quantities and compositions of any emissions from stationary sources such as boilers or exhaust stacks. Include any hazardous air pollutants, criteria pollutants. Discuss effects to air quality including any sensitive receptors, human health or applicable regulatory criteria. Include a discussion of any methods used assess the project's effect on air quality and the results of that assessment. Identify pollution control equipment and other measures that will be taken to avoid, minimize, or mitigate adverse effectsfrom stationary source emissions.

Stationary sources of air emissions associated with the Proposed Project would stem from domestic heat sources in residential facilities once they are constructed. The residential buildings to be constructed as part of the Proposed Project are anticipated to use efficient heating and cooling systems. Stationary source emissions from the Proposed Project will be minimal and will comply with current residential and industry standards for heating and cooling equipment. Therefore, the Proposed Project would not result in significant adverse impacts to air quality from stationary-source emissions.

b. Vehicle Emissions

Describe the effect of the project's traffic generation on air emissions. Discuss the project's vehicle-related emissions effect on air quality. Identify measures (e.g. traffic operational improvements, diesel idling minimization plan) that will be taken to minimize or mitigate vehicle-related emissions.

Mobile sources of air emissions associated with the Proposed Project include the use of vehicles and equipment during construction activities, as well as vehicle emissions once residential developments and interior roadways are complete. Projected vehicle emissions are not anticipated to result in significant adverse effects during or following construction activities.

c. Dust & Odors

Describe sources, characteristics, duration, quantities, and intensity of dust andodors generated during project construction and operation. (Fugitive dust may be discussed under item 17a). Discuss the effect of dust and odors in the vicinity of the project including nearby sensitive receptors and quality of life. Identify measures that will be taken to minimize ormitigate the effects of dust and odors.

The Proposed Project is not anticipated to generate any odors.

Some dust generation is anticipated during construction activities. The primary source of dust generation will stem from vehicles entering and exiting the construction area prior to the implementation of paved roadways. A wet dust suppression plan, including watering dirt construction roads, will be followed during construction operations to minimize the effects of dust. Additionally, periodic cleanup of the construction site and limiting the amount of soil disturbance will help control dust generation.

Following development operations, dust should be limited to that typical of a residential area. No long-term or significant impacts are anticipated from dust and odors.

18 Greenhouse Gas (GHG) Emissions/Carbon Footprint

a. GHG Quantification

For all proposed projects, provide quantification and discussion of project GHG emissions. Include additional rows in the tables as necessary to provide project-specific emission sources. Describe the methods used to quantify emissions. If calculation methods are not readily available to quantify GHG emissions for a source, describe the process used to come to that conclusion and any GHG emission sources not included in the total calculation.

Global climate change results from the total accumulation of greenhouse gas (GHG) in the Earth's atmosphere, as well as other human-caused and natural factors. The GHG composition in the Earth's atmosphere is changing and causing the planet's climate to change. The Proposed Project's incremental contribution to global GHGs cannot be translated into effects on climate change globally or regionally.

In general, regional impacts from climate change may include the following effects: increased mean annual air temperature (summer and winter warming); increased surface water temperatures; later onset of winter and earlier onset of spring; precipitation may fall in fewer, but more intense, storms; species adapted to cold climates may shift out of the Great Lakes basin into Canada; and aspen and

birch forests may be replaced by hardwood forests of oak and hickory. Moderate climate change may increase agricultural yields and food production, with some regional and annual variability.

Mesenbrink Construction proposes to construct a multi-use development on approximately 105 acres of agricultural land in Blue Earth County. This development would include retail/residential units, apartment units, and single family homes,. Construction would be performed utilizing traditional construction methods involving standard earth moving equipment per City of Mankato guidelines.

Currently, the area designated for the Proposed Project is primarily used as cropland. The MPCA tracks emissions of different sectors, including agriculture, and reports on this information. In 2008, the MPCA determined that cropland in Minnesota averages a greenhouse gas output of 1,776 CO2e lbs per acre per year. Using this figure, we can calculate that the annual output for 105 acres of cropland would be 186,480 lbs or 84.59 MTCO2e.

In addition, existing roadways within the Study Area contribute to GHG emissions and may be impacted by the Proposed Project. A traffic study was conducted in 2022 to assess current traffic conditions and forecast the impact of the Proposed Project on these conditions. The results of this study are summarized below in **Table 9, "Existing, Build, and No-Build AADT**." For more information, please refer to **Section 20, "Transportation,"** and **Appendix B, "Additional Assessments."**

Table 9: Existing, Build, and No-Build AADT

Roadway	Existing AADT	Build AADT (2045)	No Build AADT (2045)
TH 22	18859	27415	26328
Hoffman Rd	2000	5793	2366
CSAH 12	4000	19197	16661

Mobile source emissions generated from the existing roadways were computed using the EPA estimation of 80% of vehicles utilizing gasoline and 20% using diesel. As the roadway closest to the Study Area and the one projected to have the most significant change in average annual daily traffic (AADT) resulting from the Proposed Project, CSAH 12 data was utilized for calculating traffic emissions. These calculations were further compared to emissions data derived from averaging the AADT of all three roadways to ensure this is an accurate reflection of traffic emissions, however focusing on a single roadway rather than using the average of all three is preferred to avoid possible duplication in vehicle counts. The results of this calculation indicate that current traffic conditions on CSAH 12 produce 1,667.8 MTCO2e annually and the Proposed Project would increase this amount by 6,336.2 MTCO2e per year.

Construction activities for this project are anticipated to include a wide variety of construction equipment of various equipment classes, sizes, and engine types. Typical construction equipment for this type of project includes, but is not limited to, excavators, material handlers, skid steers, cranes, bulldozers, pavers, compactors, jackhammers, and haul trucks. These types of vehicles primarily rely on diesel as a fuel source, which results in the emission of CO2 and, to a lesser extent, CH4 and N2O. **Table 10, "GHG Emissions,"** provides an estimate for the emissions generated by this equipment for the two construction seasons anticipated to complete the Proposed Project (approx. working 120 days per season) and utilize approx. 25 diesel-powered pieces of heavy equipment and 25 gasoline-powered

passenger vehicles. The total emissions from these activities (213.3 MTCO2e) are considered one-time emissions, however the industry standard for determining long-term impacts of construction-related GHG output is to annualize the total emissions over a project's lifetime, which is defined as a 30-year period.[8] Annualized, this would be 7.11 MTCO2e.

Once construction of the project has been completed, operational GHG emissions will be the combined result of the commercial and residential spaces. In general, the annual averages for energy consumption for residential households is higher than that of commercial buildings.[9] For the purposes of calculating GHG emissions, the Proposed Project specifications of 673 residential units (113 single-family units, 30 townhomes, and 530 apartment units) is considered the equivalent of 673 households. The total commercial space is 26,400 sq ft (21,000 sq ft retail center and 5,400 sq ft gas station). Both commercial and residential spaces are anticipated to utilize the typical municipal energy sources for the area (natural gas and electricity) as well as the municipal waste management system. Estimates for each of these emissions sources are presented below in **Table 10, "GHG Emissions."** All calculations were facilitated by use of the EPA's Simplified GHG Emissions Calculator (SGEC) Version 7, dated June 2021, and information on national averages where more detailed local data was not available.

[8] Meridian Consultants, LLC. 2016. *Environmental Impact Report (EIR 15-01): Lompoc Motorsports Project, City of Lompoc*. Prepared for the City of Lompoc. Section 4.6 Greenhouse Gas Emissions: 4.6-16.
[9] U.S. Energy Information Administration. 2022. Use of Energy Explained. Electronic resource, https://www.eia.gov/energyexplained/use-of-energy/, accessed October 2022.

Table 10: GHG Emissions

Scope	Emission Type	Project-related Conditions (MTCO2e)	Calculation method(s)
Scope 1	Construction Mobile Equipment (annualized)	7.11	SGEC Tool[10] (2 construction seasons of 120 working days each, 25 gas-powered and 25 diesel-powered vehicles traveling 20 miles per day)
Scope 1	Construction Waste (annualized)	1.56	Based on national average per square foot[11]
Scope 1	Motor Vehicle Emissions	6336.2	SGEC Tool (using AADT for CSAH 12 for 2 miles of travel, 80% gas-powered and 20% diesel-powered vehicles)
Scope 1	Stationary Equipment/Facility Natural Gas Usage	2605	Based on annual national average usage for residential and commercial users[12]
Scope 2	Off-site Electricity Usage	5538.4	Based on annual national average electricity usage for residential and commercial users[13]
Scope 2	Water Usage	86.81	Water Energy Climate Calculator[14] for Mankato area
Scope 3	Off-site Waste Management	2.33	Based on 2015 MPCA annual averages for municipal waste management[15]
TOTAL		**14,577.41**	

Based on these calculations, the Proposed Project would result in an increase of 14,492.82 MTCO2e per year than is currently produced by the existing conditions. There are no Minnesota or National Ambient Air Quality Standards for GHGs. The assessment of GHG emissions and climate change is extremely complex. Currently it is not possible to model the physical impacts of global or regional climate change, such as storm frequency/intensity or temperature increases, caused by incremental GHG emissions, such as those from the Proposed Project. In other words, while this project will contribute to climate change generally, existing scientific tools do not allow local or state regulatory authorities to quantify the specific effects of a particular project on global or regional climate change impacts, and therefore cannot be added cumulatively to other potential project impacts. There is currently an absence of regulatory guidance for analyzing GHG emission impacts. If, in the future, climate models improve in their predictive capacity or more regulatory guidance is provided, the city will incorporate those tools into its environmental review process at that time.

[10] Environmental Protection Agency. 2021. Simplified GHG Emissions Calculator (SGEC), Version 7. Electronic resource, https://www.epa.gov/climateleadership/simplified-ghg-emissions-calculator, accessed July 2022.
[11] Wastecare Corporation 2013. "Waste Generated by Industry/Building Type." Electronic resource, https://www.wastecare.com/usefulinfo/Waste_Generated_by_Industry.htm, accessed July 2022.
[12] U.S. Energy Information Administration. 2022. Natural Gas Summary. Electronic resource, https://www.eia.gov/dnav/ng/NG_SUM_LSUM_A_EPG0_VRS_MMCF_M.htm, accessed October 2022.
[13] U.S. Energy Information Administration. 2022. Use of Energy Explained. Electronic resource, https://www.eia.gov/energyexplained/use-of-energy/, accessed October 2022.
[14] Pacific Institute. 2010. Water Energy Climate Calculator. Electronic resource, http://www.wecalc.org, accessed July 2022.
[15] Minnesota Pollution Control Agency. 2017. *Metropolitan Solid Waste Management Police Plan 2016-2036*. Electronic resource, https://www.pca.state.mn.us/sites/default/files/w-sw7-21e.pdf

b. GHG Assessment

i. GHG Mitigation Considerations

Describe any mitigation considered to reduce the project's GHG emissions.

At least some of these emissions may be mitigated or offset by practices that can remove carbon from the atmosphere and sequester it. Additional practices can reduce additional indirect GHG emissions due to energy usage and other activities. These mitigation efforts may include planting native grasses to facilitate carbon uptake, establishing sustainability operations plans to reduce electric and natural gas usage, and increasing recycling and energy reuse efforts. The majority of these mitigation efforts will depend on municipal policy and end-user efforts and are therefore not a part of the current project proposal. However, during construction, BMPs such as engine anti-idling would be implemented in order to minimize additional GHG output.

ii. GHG Reduction Calculations

Describe and quantify reductions from selected mitigation, if proposed to reduce theproject's GHG emissions. Explain why the selected mitigation was preferred.

No current on-site mitigation is planned as part of the Proposed Project. However, it should be noted that the inclusion of a green space in project plans will offset some of the emissions resulting from the retail and residential development. Unfortunately, there are currently no reliable and widely accepted methods for calculating the emissions reduction of urban and suburban park spaces.

iii. Project Lifetime GHG Emissions

Quantify the proposed projects predicted net lifetime GHG emissions (total tons/#of years) and how those predicted emissions may affect achievement of the Minnesota Next Generation Energy Act goals and/or other more stringent state or local GHG reduction goals.

As current MN Statutes require greenhouse gas (GHG) emissions control plans for large energy facilities, the State has implemented a climate action plan to address GHG emissions.[16] Current goals are to reduce GHG emissions statewide to 30% below 2005 levels by 2025, and 80% below 2005 levels by 2050. The Proposed Project does not involve any large energy facilities but is a mixed-use development of commercial and residential spaces. However, BMPs will be utilized in the planning and construction phases of the project in order to remain in keeping with State and local GHG reduction goals.

[16] 2020 Minnesota Statutes. CHAPTER 216H: GREENHOUSE GAS EMISSIONS. Electronic document, https://www.revisor.mn.gov/statutes/cite/216H, accessed July 2022.

19 Noise

Describe sources, characteristics, duration, quantities, and intensity of noise generated during project construction and operation. Discuss the effect of noise in the vicinity of the project including 1) existing noise levels/sources in the area, 2) nearby sensitive receptors, 3) conformance to state noise standards, and 4) quality of life. Identify measures that will be taken to minimize or mitigate the effects of noise.

Existing noise sources in the area include vehicle traffic along Blue Earth County Highway 12.

a. Construction Noise

Noise associated with the construction of the Proposed Project will be generated from grading and excavation activities to prepare the site for utility and roadway installation. See **Table 11, "Typical Construction Equipment Noise Levels at 50 Feet,"** for typical noise levels of construction equipment measured at 50 feet.

Table 11: Typical Construction Equipment Noise Levels at 50 Feet

Equipment	Manufacturers Sampled	Total Number of Models in Sample	Peak Noise Level (dBA*)	
			Range	Average
Backhoes	5	6	74-92	83
Front Loaders	5	30	75-96	85
Dozers	8	41	65-95	85
Graders	3	15	72-92	84
Scrapers	2	27	76-98	87
Pile Drivers	N/A	N/A	95-105	101

*Units of "A-weighted Decibels"
Source: United States Environmental Protection Agency and Federal Highway Administration

Minnesota Rules, Part 7030, define daytime hours as 7am to 10pm, and nighttime as 10pm to 7am. Construction operations will occur within State noise standards as cited in **Table 12, "Noise Standards (MN Statute 7030.0040),"** below.

Table 12: Noise Standards (MN Statute 7030.0040)

Noise Area Classification	Daytime		Nighttime	
	L_{50}	L_{10}	L_{50}	L_{10}
1 (Residential)	60	65	50	55
2 (Commercial)	65	70	65	70
3 (Industrial)	75	80	75	80

*L_{10} is the sound level, expressed in dBA, which is exceeded 10% of the time for one hour.
*L_{50} is the sound level, expressed in dBA, which is exceeded 50% of the time for one hour.

b. Traffic Noise

Traffic noise is anticipated to increase during construction activities and post-construction with the established residential developments and interior roadways. Operators will ensure all vehicles and equipment have mufflers and operate in accordance with State and local regulations. Therefore, the Proposed Project would not result in significant adverse impacts from traffic noise.

20 Transportation

a. Project-Related Traffic

Describe traffic-related aspects of project construction and operation. Include: 1) existing and proposed additional parking spaces, 2) estimated total average daily traffic generated, 3) estimated maximum peak hour traffic generated and time of occurrence, 4) indicate source of trip generation rates used in the estimates, and 5) availability of transit and/or other alternative transportation modes.

S2 Traffic Solutions, LLC (SSTS) completed a Traffic Study Memorandum to estimate the trips generated by the Proposed Project and evaluate the potential need for transportation or roadway improvements. The complete Traffic Study is included in **Appendix B, "Additional Assessments."**

Existing and Proposed Parking Spaces

The subject property is currently undeveloped and does not have a defined parking area. The Proposed Project would include 713 apartment units that would have off-street parking and garages, there would be 1,426 parking stalls; 112 single family homes, that would have off-street parking and garages, there would be 224 parking stalls; 6,250 square feet of commercial retail space that would include off-street parking, there would be 25 parking stalls; and a convenience store/gas station that would include parking spaces on the lot for customers of the Convenience Store, there will be 25 parking stalls. 1,700 total off-street parking spaces would be provided.

Estimated Traffic Generation

SSTS prepared a Traffic Study Memorandum for the Proposed Project. The Traffic Study Memorandum assumed full development of the site by 2025. The complete Traffic Study Memorandum is included in **Appendix B, "Additional Assessments."**

Trip generation was estimated using the methodology outlined in the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 11th Edition*. The Proposed Project is anticipated to generate approximately 7,876 vehicle trips per day. Within the PM peak hour, the Proposed Project is anticipated to generate 710 trips, consisting of 395 entering vehicles and 315 exiting vehicles. Project trip generation is detailed in **Table 13, "Project Trip Generation,"** and the Traffic Study Memorandum included in **Appendix B, "Additional Assessments,"** provides a full description and analysis of the peak-hour traffic and traffic recommendations.

Table 13: Project Trip Generation

Land Use	Type	Block No.	Land Use Code	Size		Trips Generated: AM peak Enter	AM peak Exit		PM Peak Enter	PM Peak Exit		Weekday ADT
Mid-Rise Apartment/Suburban	Residential	1	221	713	units	R 62	195	R	170	108	R	3,237
Single Family Housing	Residential	1	210	112	units	R 20	58	R	66	39	R	1,056
Shopping Center	Retail	2	822	6,250	s.f.	R 9	6	R	21	21	R	343
Convenience Store/Gas Station	Retail	2	945	16	fuel pos.	R 216	216	R	182	182	R	4,114
Totals - Gross						307	475		439	350		8,751
						782			789			
Shared Trips						31	48		44	35		875
						78			79			
Pass-By Trips						0	0		0	0		0
						0			0			
Totals - Net*						**276**	**428**		**395**	**315**		**7,876**
						704			**710**			

Availability of Transit and Alternative Transportation

Mankato Transit provides transit services in Mankato and North Mankato, however, transit routes currently do not serve the area within or adjacent to the Study Area. The nearest transit facility to the site is located in front of the Blue Earth County Justice Center, over half a mile from the site from the site.

Trails and sidewalks provide another alternative approach for local travel. The project would include internal sidewalks and trails, and sidewalks along some residential streets to link with existing and future local sidewalk and trail systems.

b. Potential Congestion

Discuss the effect on traffic congestion on affected roads and describe any traffic improvements necessary. The analysis must discuss the project's impact on the regional transportation system.If the peak hour traffic generated exceeds 250 vehicles or the total daily trips exceeds 2,500, a traffic impact study must be prepared as part of the EAW. Use the format and procedures described in the Minnesota Department of Transportation's Access Management Manual, Chapter 5 (available at: http://www.dot.state.mn.us/accessmanagement/resources.html) or a similar local guidance.

SSTS documented existing conditions of the nearby roadways during the weeks of August 22, 2022, and September 5, 2022. The study focused on the following intersections:

1. TH 22 & Hoffman Road
2. 586th Avenue (CSAH 12) & Hoffman Road
3. CSAH 12 & 211th Lane

Peak hour turning movement counts were conducted at the above intersections and indicate the AM peak hour occurs at 7:15 AM to 8:15 AM, and the PM peak hour occurs at 4:45 PM to 5:45 PM.

SSTS analyzed intersection operations using *Synchro/Simtraffic, 11th Edition*, for the 2025 build-out year and for the 2045 planning horizon year. There are no improvement projects planned for the Study Area roadways and none were assumed for the no-build or build conditions.

Effects on Traffic and Roadways

The results of the analysis show that all intersections are expected to operate at acceptable LOS C or better for overall operations with manageable vehicle queues for both the 2025 No-Build and Build conditions. During the 2045 AM Peak hour for both the No-Build and Build conditions, the analysis indicates the intersection of TH 22 and Hoffman Road would be approaching capacity with long delays for some movements and long vehicle queues in the westbound direction. It is recommended that this intersection be monitored for potential future capacity improvements. All other studied intersections would operate acceptably.

c. Mitigation Measures

Identify measures that will be taken to minimize or mitigate project related transportationeffects.

No mitigation measures are required to accommodate site generated traffic. That said, if conditions deteriorate at the intersection of TH 22 and Hoffman Road by 2045, MnDOT should consider redesigning the intersection. Potential minimal improvements including extension of the existing westbound right turn lane back to Coneflower Lane and conversion of the lane to a share through and right turn lane will provide adequate additional capacity. The new through and right turn lane from Coneflower Lane will require the reduction of the TH 22 southbound to westbound protective island and will change the right turn movement to permissive rather than free flowing. Preliminary analysis indicates this improvement alone will provide adequate LOS for the intersection and all approaches. Also, protected permissive traffic signal phasing on the north and southbound TH 22 approaches which is currently used at the TH 22 and Bassett Drive intersection could be considered. It is noted, the TH 22 volumes are greater at Bassett Drive, and the speed through the Bassett Drive intersection is only 45 mph. The change to protected/permissive phasing may or may not be practical as the speeds on TH 22 presently are 55 mph through the Hoffman Road intersection. That said, with the MAPO emphasis on urbanizing the study area through the year 2045 it is possible the speed on TH 22 will be reduced through the Hoffman Road intersection in the future. This improvement by itself would not restore operations to acceptable levels but could enhance the LOS by reducing overall delay. The strategies above are just suggestions to provide adequate capacity for the specific 2045 conditions studied.

It is noted that MnDOT completed a corridor study in 2018 for TH 22, which suggested that traffic control at Hoffman Rd be converted to a 2-lane roundabout with mainline metering and right-turn bypass lanes for all approaches by year 2045. Review of operations with this improvement show acceptable overall level of service and delay at TH 22 and Hoffman Rd. That said, this improvement is not currently programmed. The City of Mankato supports MnDOT in the review of design alternatives to provide solutions for long range capacity enhancements.

21 Cumulative Potential Effects

a. Geographic Scales & Timeframes

Describe the geographic scales and timeframes of the project related environmental effects that could combine with other environmental effects resulting in cumulative potential effects.

It is estimated that the Proposed Project may take upwards of five to ten years to completely build out, depending on the development market. During this timeline, the City will promote sustainable practices to reduce impacts from other local and regional development.

b. Future Projects

Describe any reasonably foreseeable future projects (for which a basis of expectation has been laid) that may interact with environmental effects of the proposed project within the geographic scales and timeframes identified above.

The City of Mankato will work closely with the County and area townships to determine any potential constraints or opportunities with regard to additional road or other improvements, or developments, in this area that may compound impacts identified within this EAW—especially during active construction. Zoning, as well as all permit and approval requirements, will be secured prior to construction of the Proposed Project.

c. Discussion/Summary of Cumulative Potential Effects

Discuss the nature of the cumulative potential effects and summarize any other available information relevant to determining whether there is potential for significant environmental effects due to these cumulative effects.

Cumulative effects associated with the Proposed Project are essentially the effects of continued growth and development. This can have both positive and negative effects on the human and natural environment. The largest impact to this parcel is the loss of wildlife areas and an increase in impervious surfaces. Through responsible development and using best management practices, negative impacts can be minimized.

Future development within and near the Study Area is anticipated to generate more traffic, placing some additional pressure on the surrounding transportation systems. To account for this, continued transportation planning at the local and county levels is necessary to provide for the long-term development and anticipated growth in the City of Mankato.

Through the increase in traffic and impervious surfaces, and adding facilities with heating and cooling systems, there may be a minimal increase in greenhouse gas (GHG) emissions. It is unlikely this will grossly increase the regional impacts from climate change. Best management practices during the construction process, use of energy efficient building materials and appliances or other systems, and the addition of native landscape vegetation and tree species may help offset impacts from increased GHG emissions.

22 Other Potential Environmental Effects

If the project may cause any additional environmental effects not addressed by items 1 to 20, describe the effects here, discuss the how the environment will be affected, and identify measures that will be taken to minimize and mitigate these effects.

The Proposed Project is not anticipated to adversely affect any additional human or environmental elements not already addressed within this EAW document.

RGU CERTIFICATION

*The Environmental Quality Board will only accept **SIGNED** Environmental Assessment Worksheets for public notice in the EQB Monitor.*

I hereby certify that:

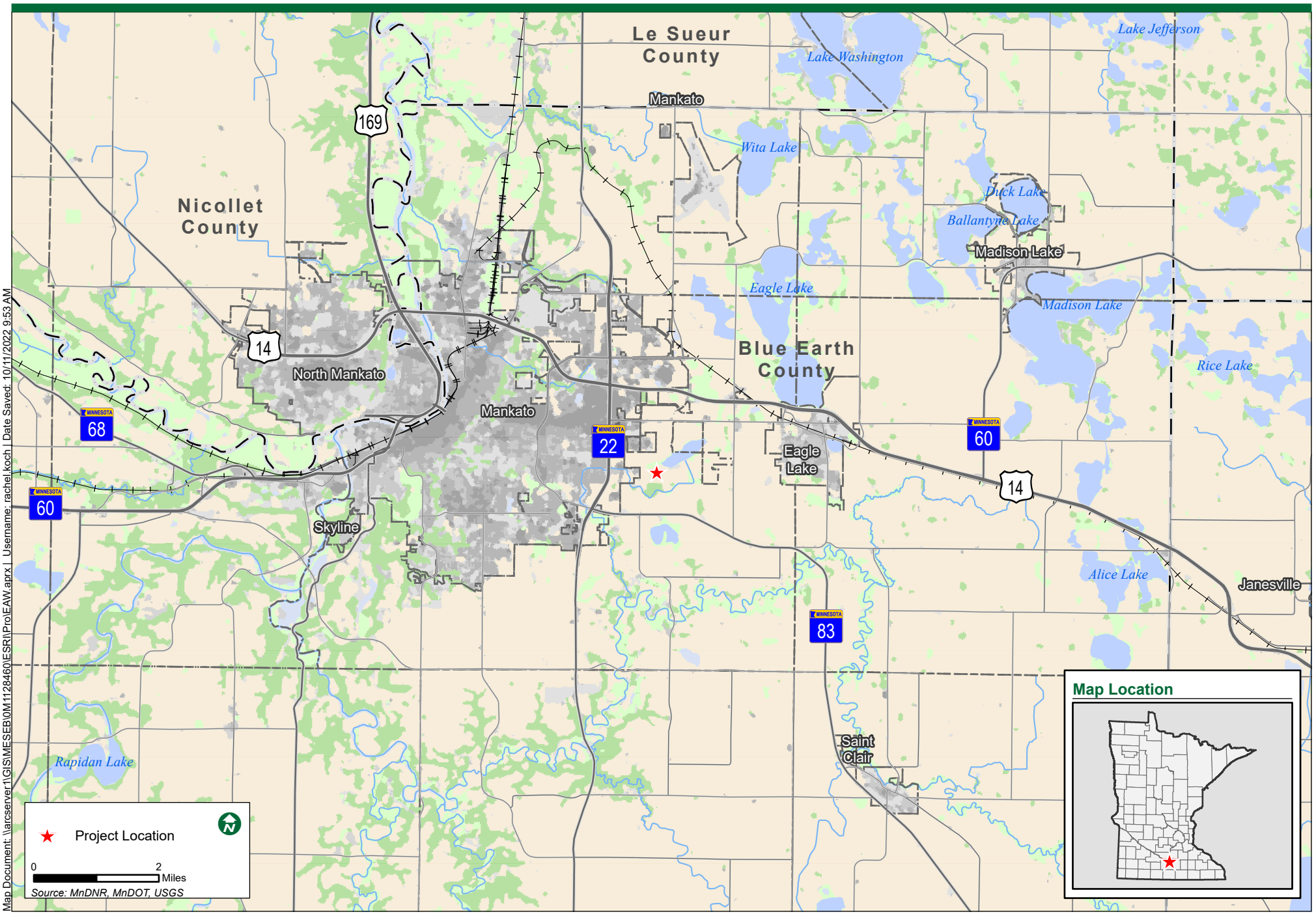
- The information contained in this document is accurate and complete to the best of my knowledge.
- The EAW describes the complete project; there are no other projects, stages or components other than those described in this document, which are related to the project as connected actions or phased actions, as defined at *Minnesota Rules, parts 4410.0200, subparts 9c and 60*, respectively.
- Copies of this EAW are being sent to the entire EQB distribution list.

Signature Mark J. K Date 4/20/23

Title Associate Director of Planning + Development Services

Appendix A: Figures

Figure 1: Regional Location



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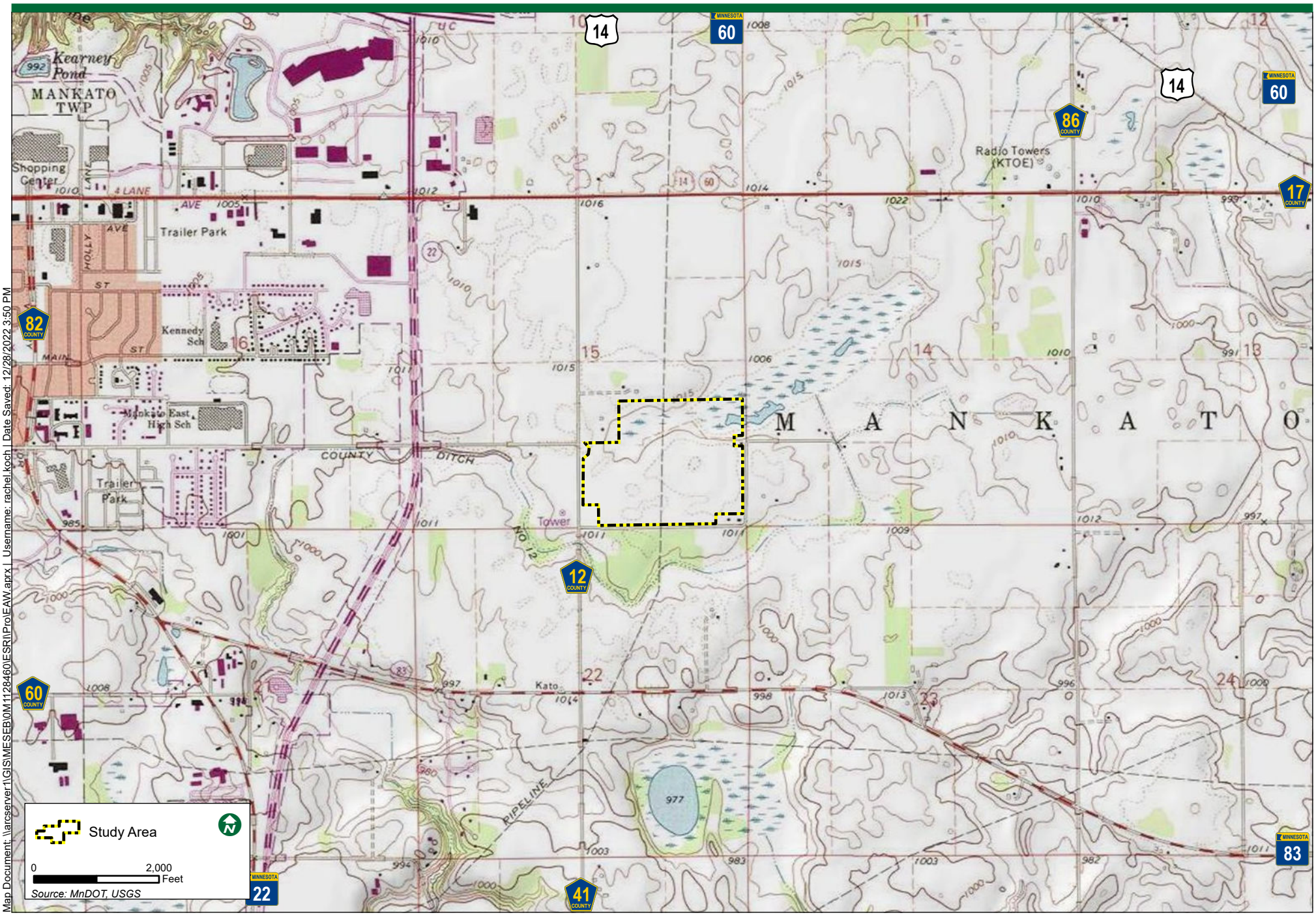

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Mesenbrink Project
Mankato, Minnesota

Concept Plan
March, 2023

BOLTON & MENK

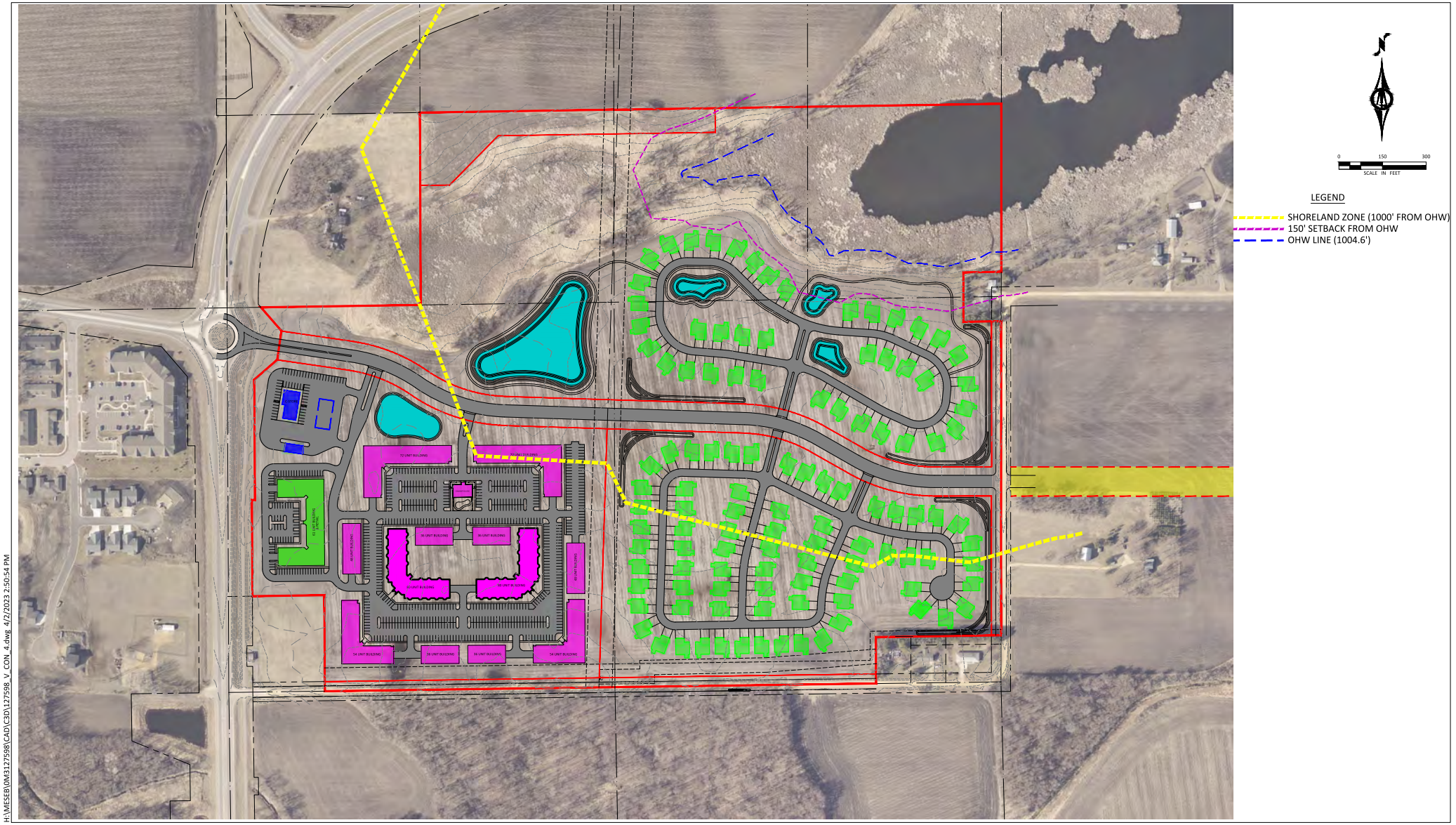

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Figure 4: Existing Land Cover

April 2023

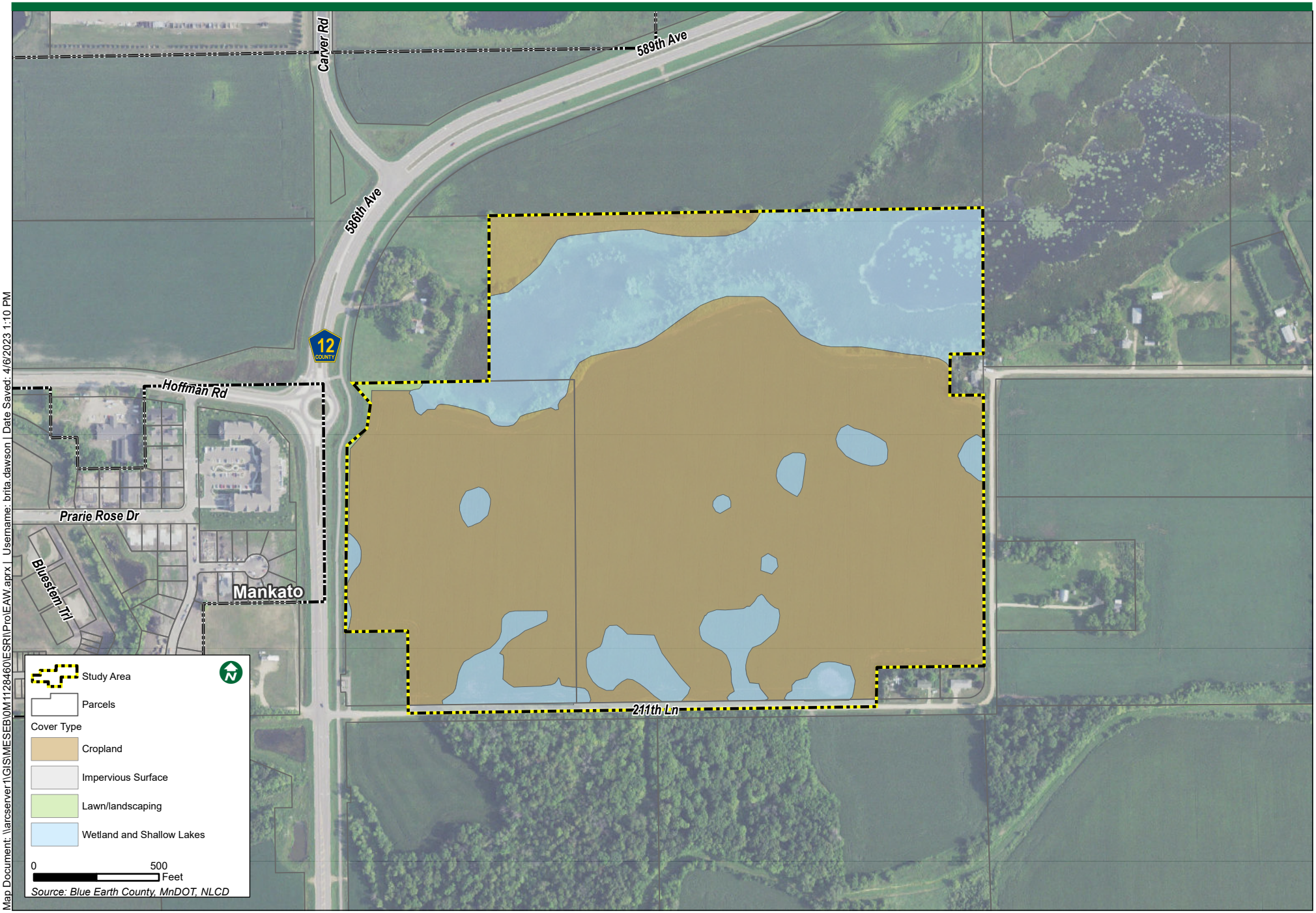

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Figure 5: Future Land Cover

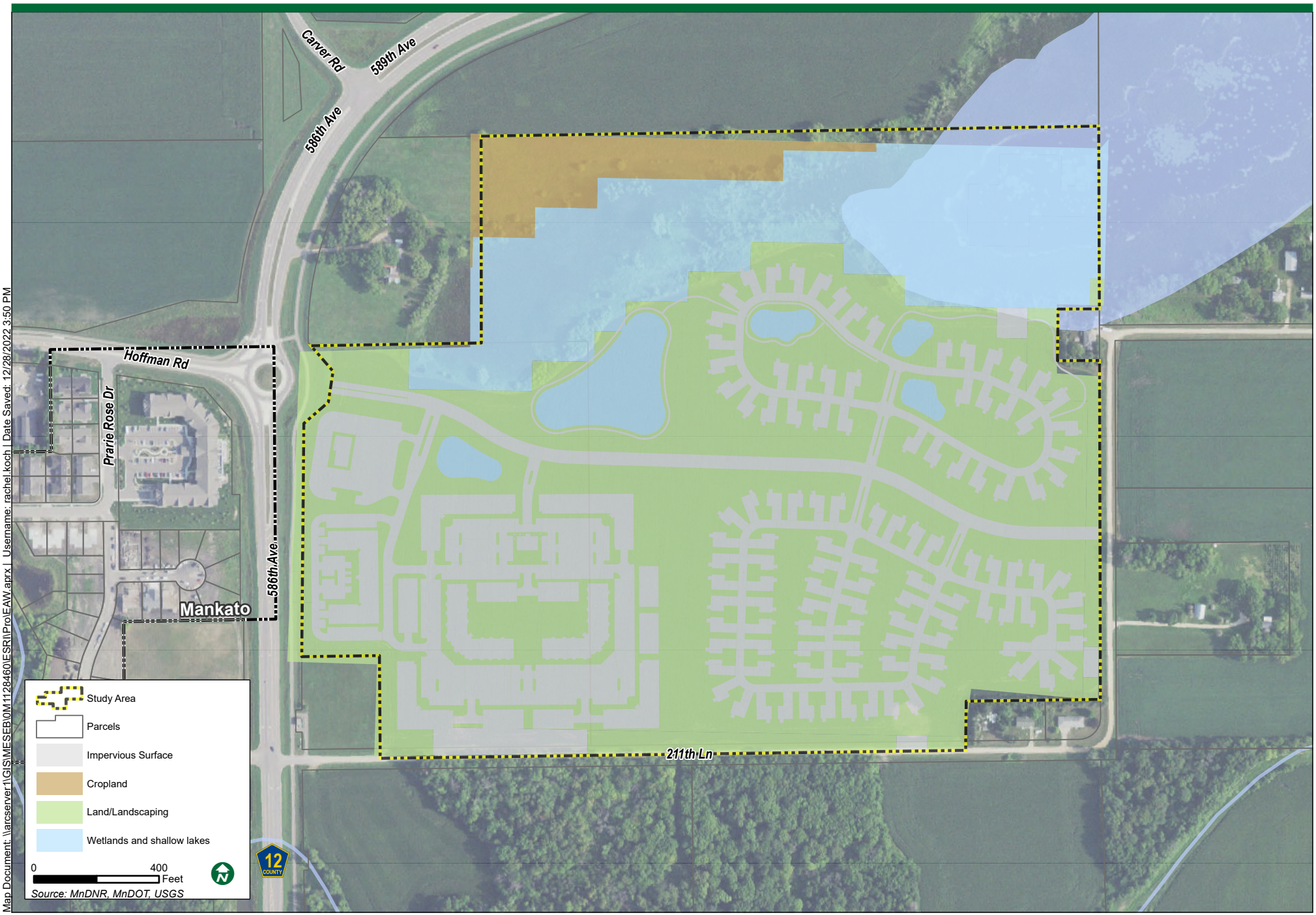

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Figure 6: Existing Land Use

December 2022

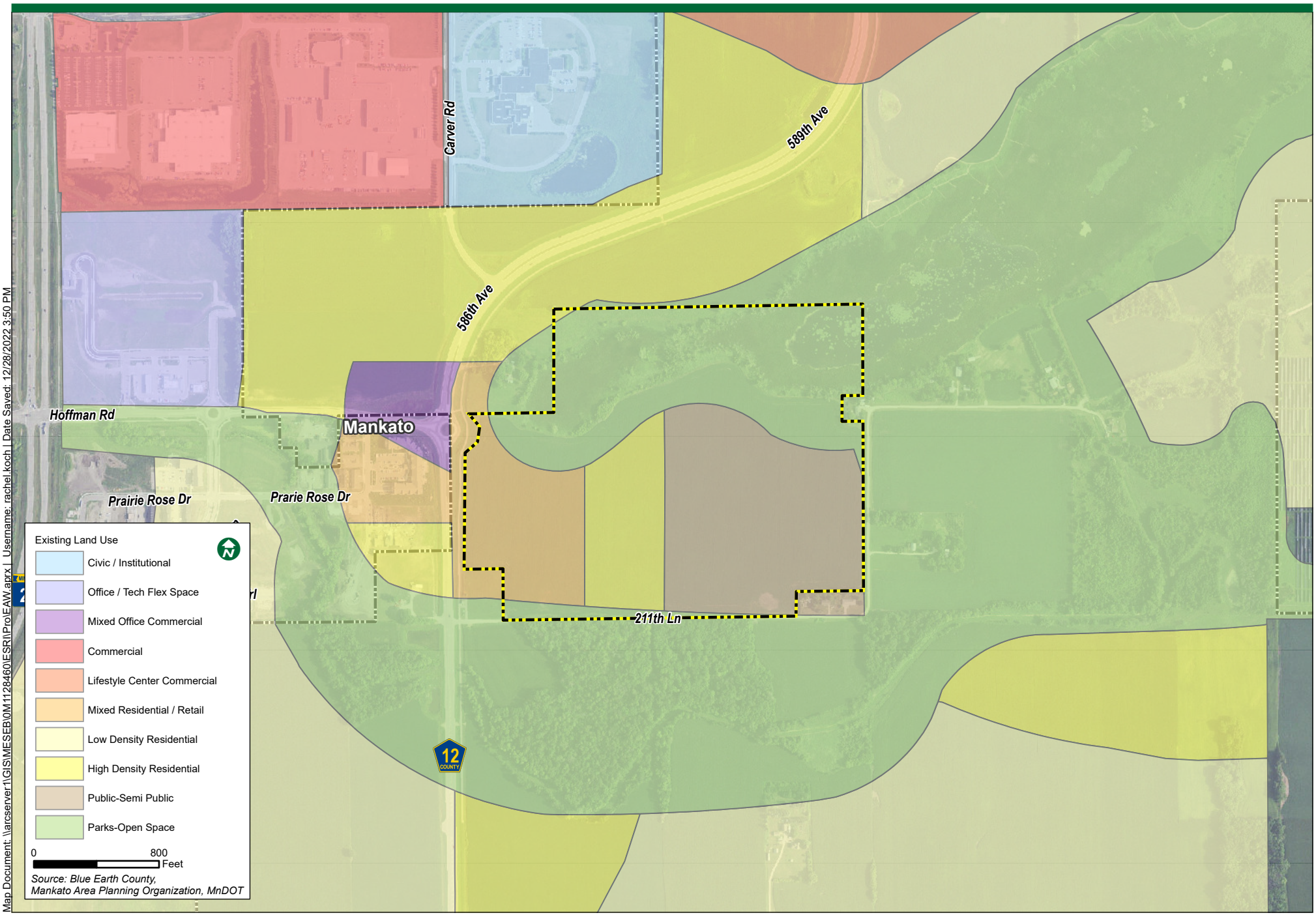

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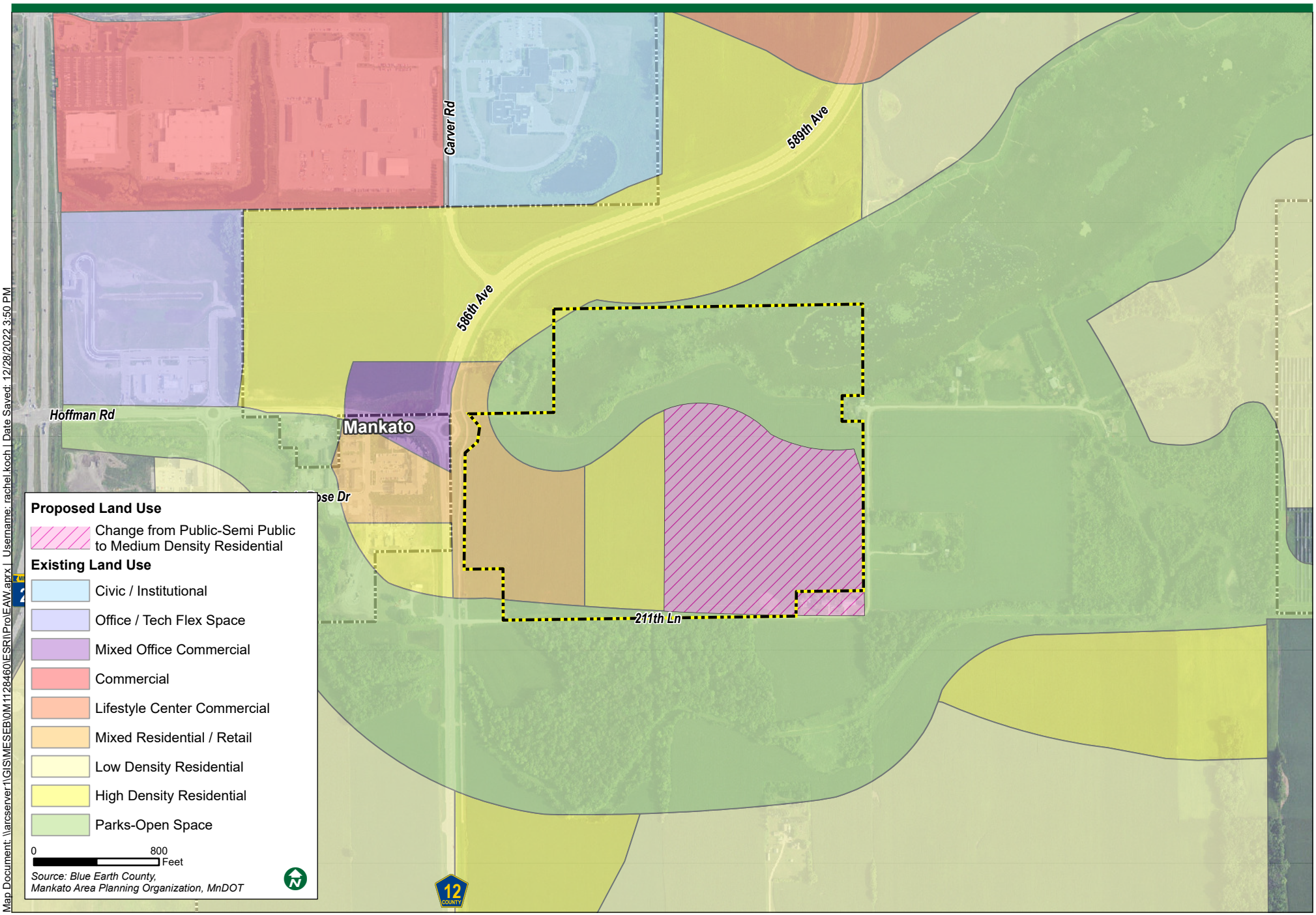
Figure 7: Proposed Land Use

December 2022



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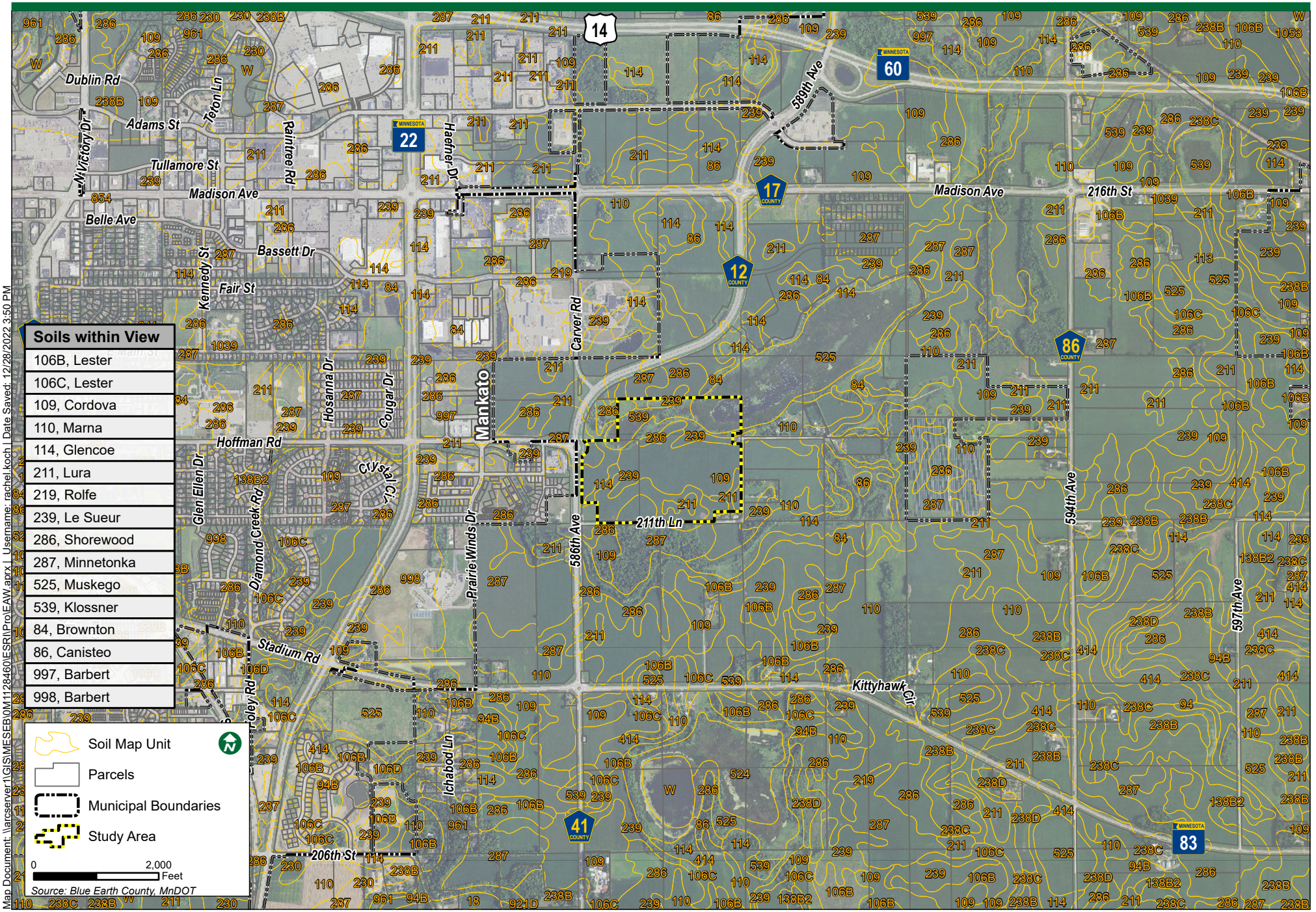

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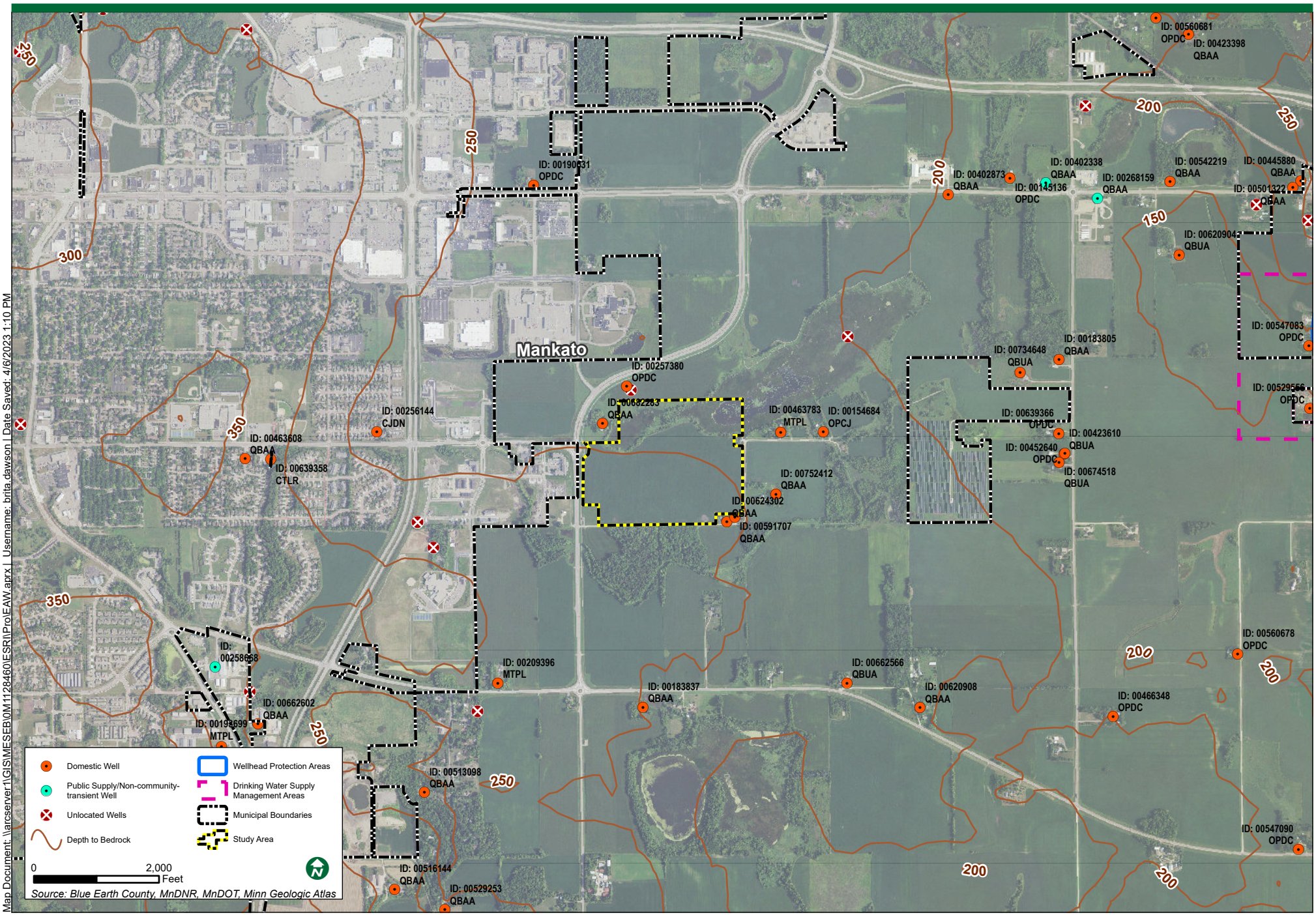

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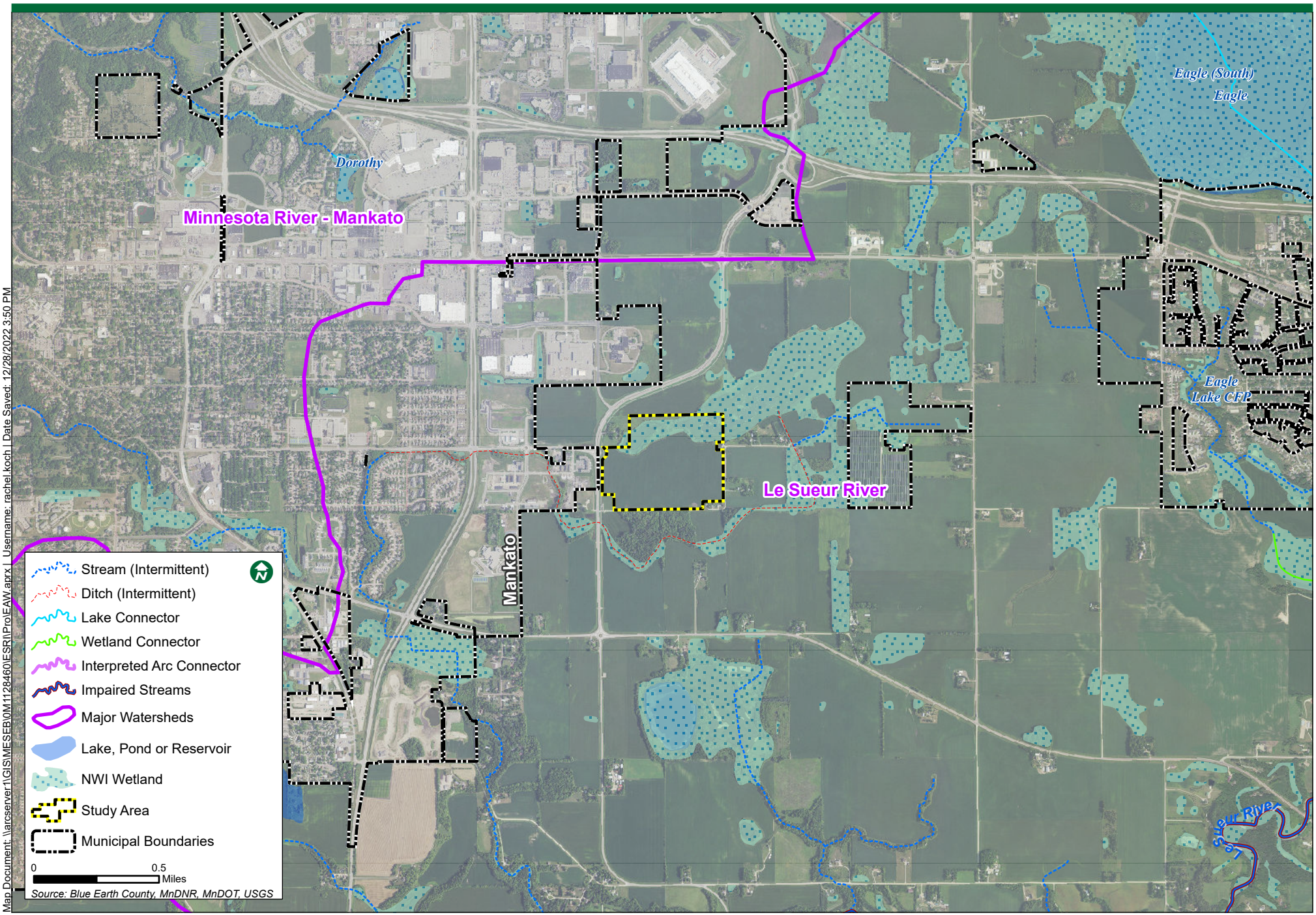

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Figure 11: Existing Drainage Patterns

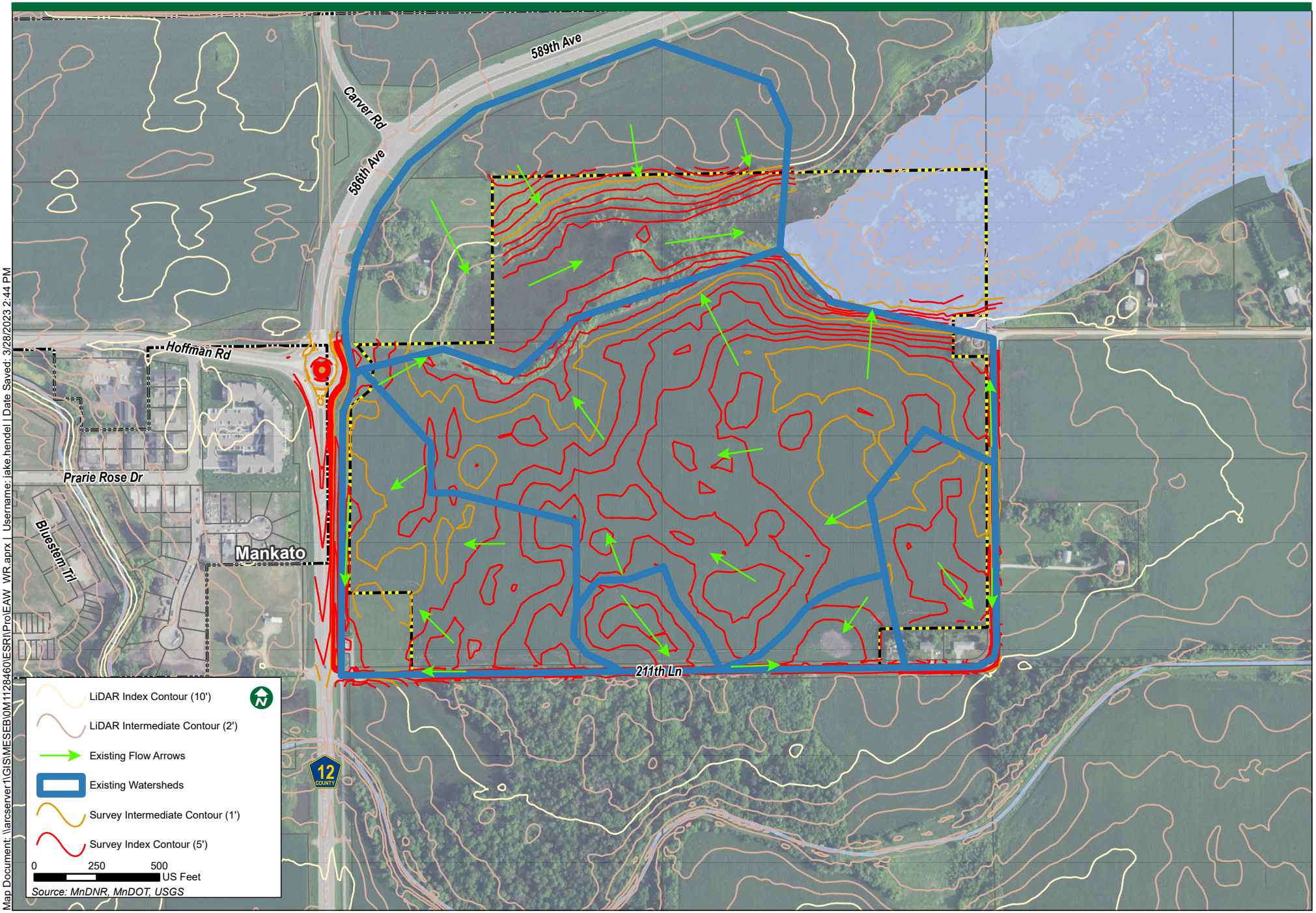

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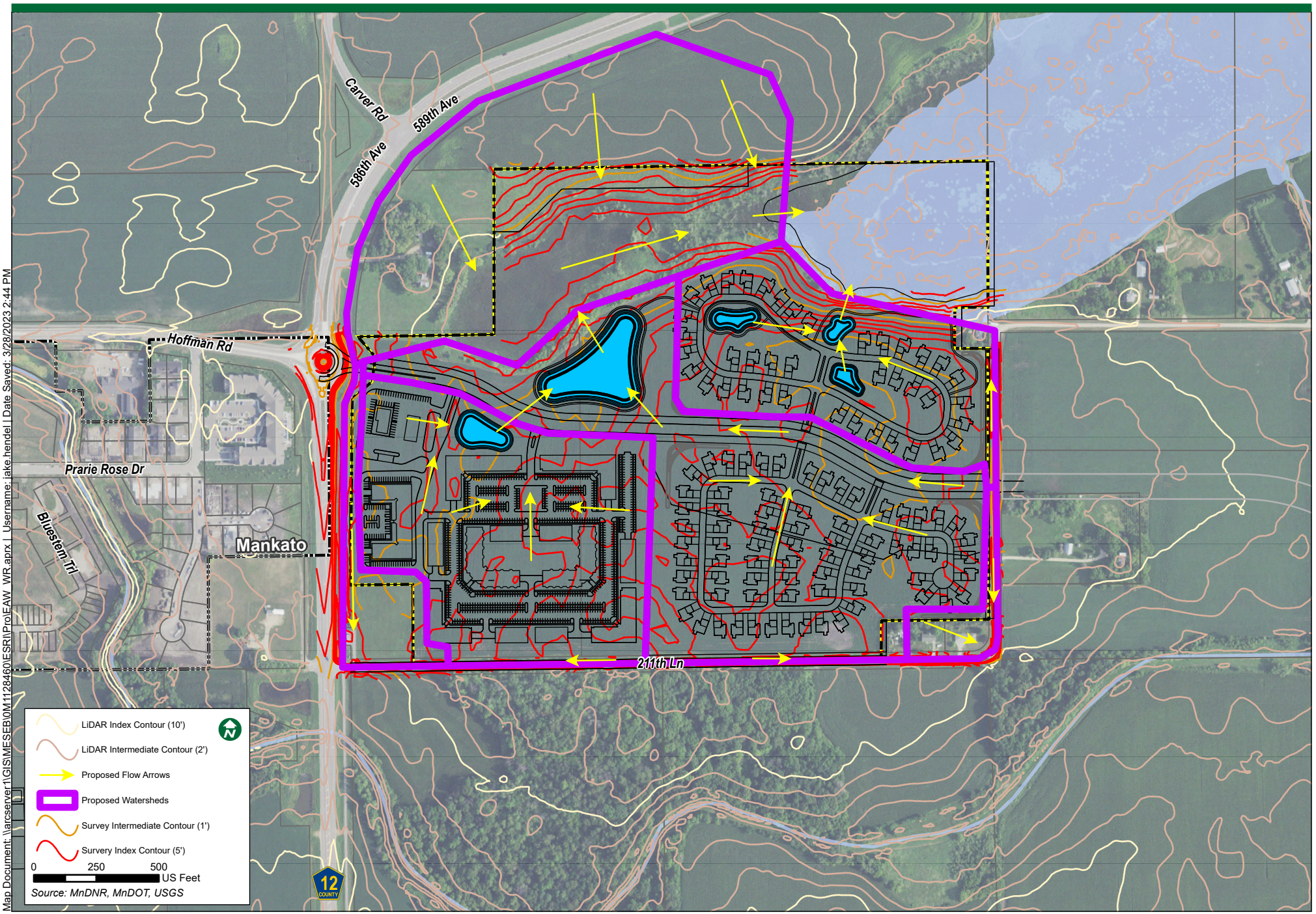
Figure 12: Proposed Drainage Patterns

March 2023



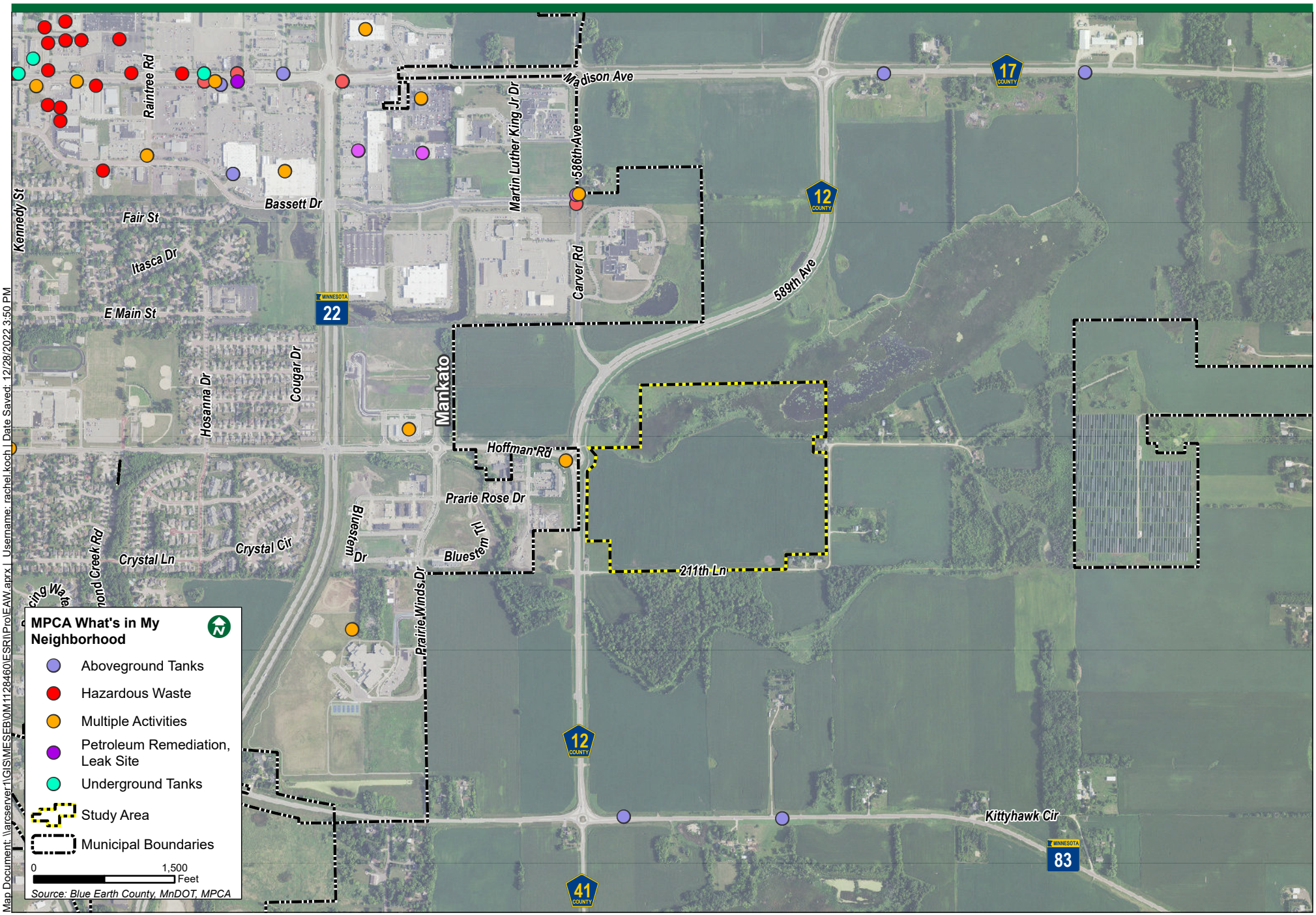


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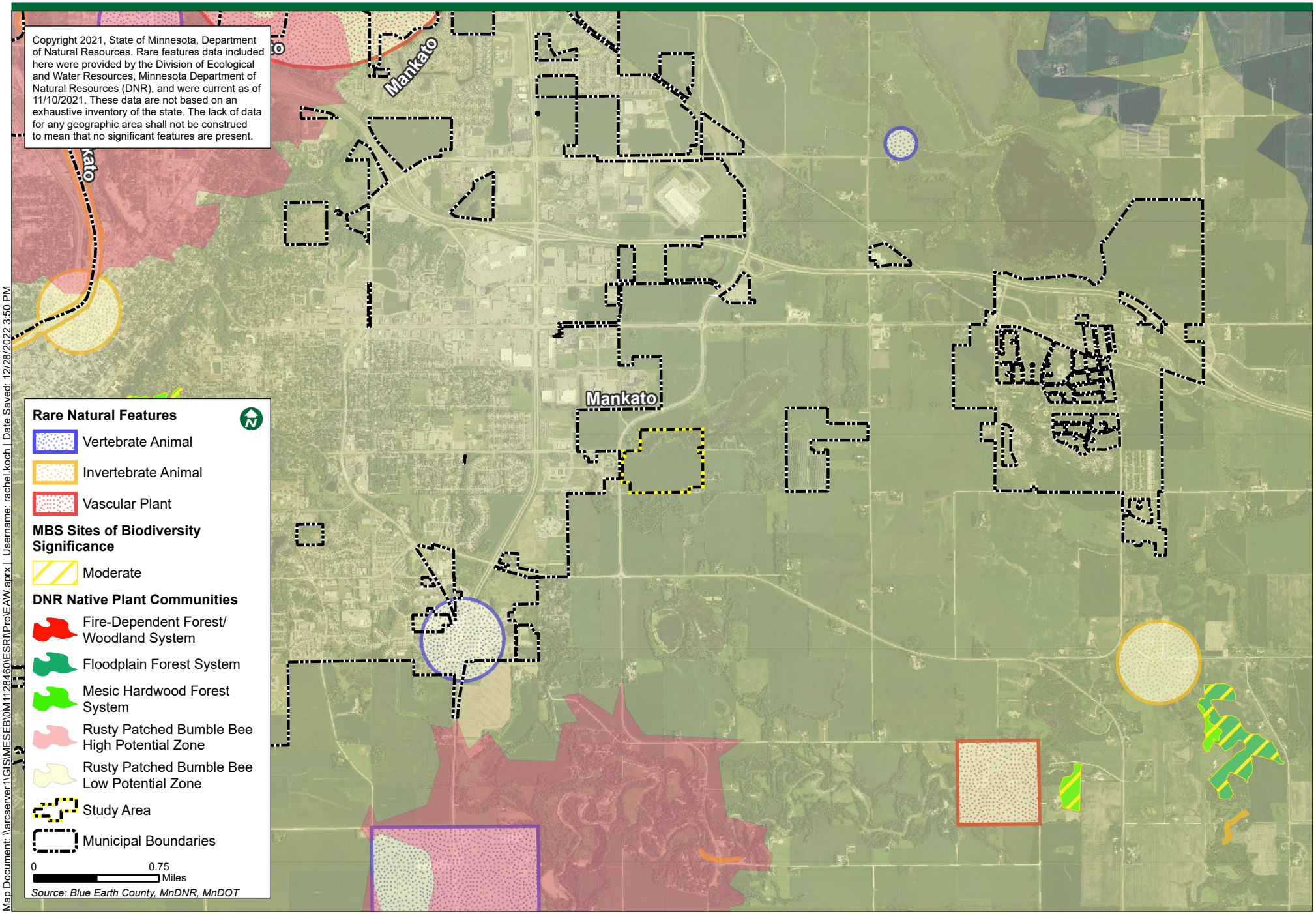
Figure 14: Biotic Resources

December 2022

BOLTON & MENK



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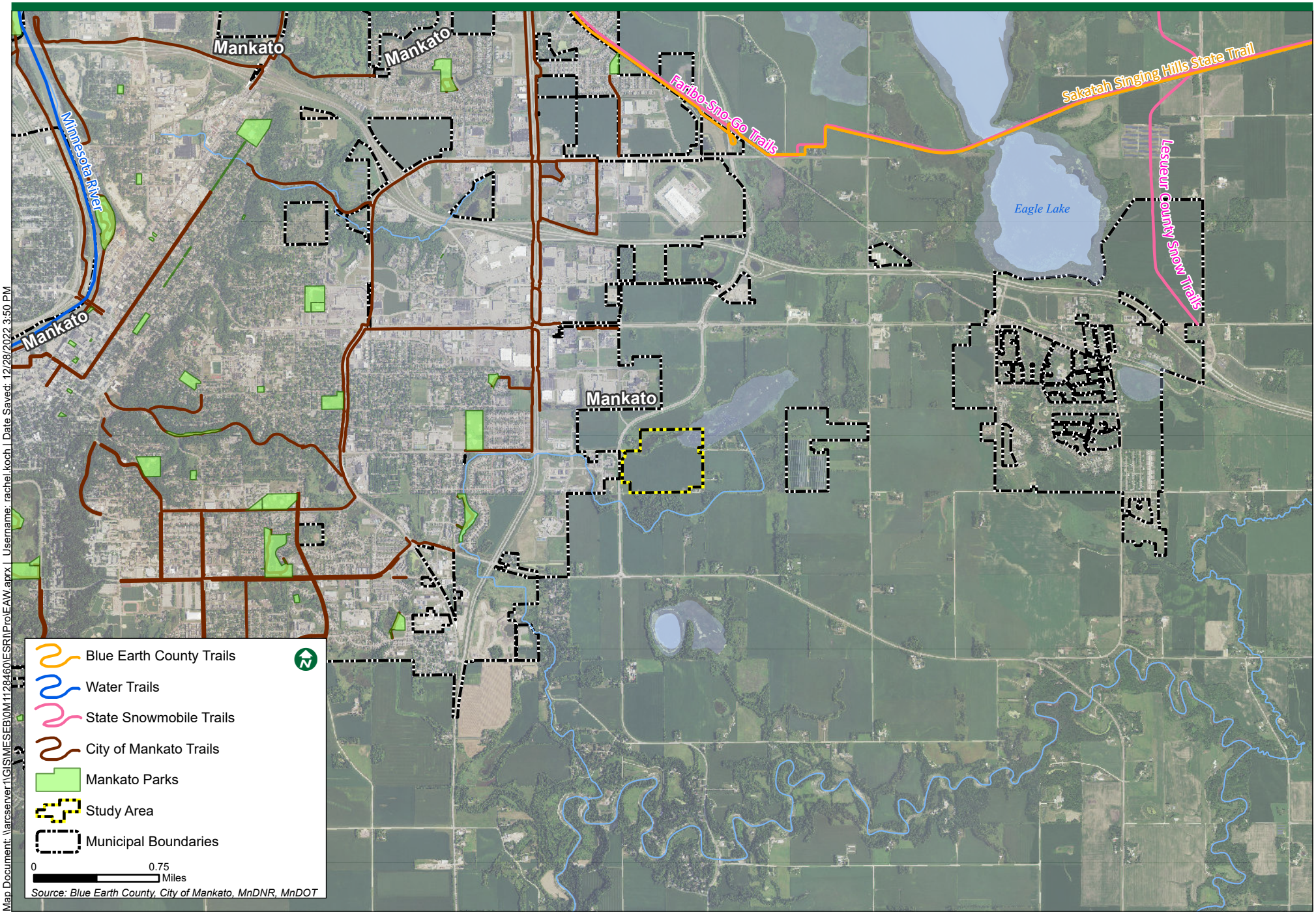


Appendix B: Additional Assessments and Information

Traffic Study Memorandum

SSTS
S² TRAFFIC SOLUTIONS

March 28, 2023

To: **John Mesenbrink, Mesenbrink Construction**

From: **Vernon Swing, PE**

Re: **Traffic Analysis – Mesenbrink Mixed Use, Mankato, MN**

Per your request, SSTS LLC has conducted a traffic study for the Mesenbrink Mixed Use Development (hereafter referred to as the Proposed Project) located on the east side of 586th Ave (CSAH 12) at Hoffman Rd in Mankato, MN. This traffic study reflects the anticipated development of 112 single family homes, 713 mid-rise multi-family units, 6,250 sq ft (6.25 K-sf) of retail/shopping center and a 4.7 K-sf convenience/gas station and assumes completion of the development by the 2025 design year. The Proposed Project will be accessed via an extension of Hoffman Dr from the roundabout at CSAH 12 to the east, and from 211th Ln. **Figure 1**, Vicinity Map, depicts the location. **Figure 2**, Site Plan, illustrates the site layout and access locations.

The study area for this memorandum includes the intersections listed below, and the study focuses on the traffic operations during the 2025 Design year and 2045 Planning Horizon Year with and without the Proposed Project.

- Hoffman Rd & TH 22
- Hoffman Rd & CSAH 12
- CSAH 12 & 211th Ln

The existing AM and PM peak hour traffic conditions were documented through new turning movement traffic counts at the listed intersections. Further, forecasts were developed for the 2025 traffic conditions and 2045 traffic conditions at these intersections without the development, and forecasts of the trip generation potential for the proposed land uses and distribution of these trips through the study area are documented.

Existing Conditions

The existing conditions of the roadways and intersection providing direct and indirect access to the Proposed Project were documented and are noted in **Table 1** (the descriptions reflect conditions adjacent to the site). Additionally, **Figure 3** shows the existing lane geometry and traffic control at the study intersections.

Table 1. Study Roadway Characteristics

Roadway	Functional Class	Typical Section	Posted Speed	AADT (Year)
TH 22	Principal Arterial	4-Lane Divided Rural	55 mph	18,859 (2021) (MnDOT)
Hoffman Rd	Major Collector	2-Lane Undivided Urban	30 mph	1,800 (2020) (MAPO)
CSAH 12	Major Collector	2-Lane Undivided Rural	45 mph	4,000 (2022) (Counts)
211th Ln	Local Street	2-Lane Undivided Rural	30 mph	N/A

Existing Traffic Volumes

AM and PM peak hour turning movement counts were conducted at the study area intersections on Thursday August 25, 2022, and on Thursday September 8, 2022. The following notes the peak hour timeframes:

- AM: 7:15 AM to 8:15 AM
- PM: 4:45 PM to 5:45 PM

Figure 4 illustrates the existing peak hour traffic volumes.

Future Conditions

To quantify the impacts of a development on the surrounding roadway system, it is necessary to first forecast and analyze traffic conditions that would be present on the roadway system without the inclusion of the proposed project. For this study, it is anticipated that the Proposed Project will be completed by 2025, thus year 2025 was selected for analysis, and again forecasts have been completed for the year 2045 to be consistent with the Planning Year Horizon. Review of the MAPO 2045 Transportation Plan indicates that traffic on TH 22 will grow at a rate of approximately 1.4 percent per year, traffic on Hoffman Rd will grow at approximately 1.1 percent per year, and traffic on CSAH 12 will grow at a rate of 6.4 percent per year. It is important to consider that these growth forecasts reflect the inclusion of development of this property, with approximately the same site usage. This analysis utilized the 1.4 percent growth in background traffic on both TH 22 and Hoffman Rd, and the 6.4 percent growth rate on CSAH 12. This will present a conservative analysis of the Build conditions as by 2045 the background numbers with the forecast growth will include development of the parcel, thus the results of the 2045 No-Build will essentially reflect the MAPO Build forecast for the subject property, and the Build results, as presented, are a worst case. **Figure 5** illustrates the No-Build traffic volumes for year 2025, and **Figure 6** illustrates the 2045 No-Build traffic volumes, with the growth applied to existing traffic volumes.

Trip Generation and Distribution

The trip generation estimates reflect the land uses discussed for the Proposed Project including 112 single family homes, 713 multi-family units, 6.25 K-sf of retail shopping, and a 4.7 K-sf Convenience/Gas Station. The volume of vehicle trips generated by the Proposed Project has been estimated for the weekday AM and PM peak hours and on a daily basis using the data methodology described in the Institute of Transportation Engineers' ***Trip Generation Manual*** [1]**,** 11th Edition. ITE's Land Use Codes corresponding to proposed uses are Single Family Homes 210, Mid-Rise Multi-Family 221, Retail Shopping Less than 40 K-sf 822, and Convenience Store/Gas Station 845. Table 2 summarizes the trip generation estimate for the Proposed Project.

[1] **Trip Generation Manual**, Institute of Transportation Engineers (ITE), 11th Edition

Table 2 - Trip Generation

Land Use	Type	Block No.	Land Use Code	Size	Trips Generated: AM peak Enter	AM peak Exit	PM Peak Enter	PM Peak Exit	Weekday ADT
Mid-Rise Apartment/Suburban	Residential	1	221	713 units	62	195	170	108	3,237
Single Family Housing	Residential	1	210	113 units	21	59	67	39	1,066
Shopping Center	Retail	2	822	6,250 s.f.	9	6	21	21	343
Convenience Store/Gas Station	Retail	2	945	16 fuel pos.	216	216	182	182	4,114
Totals - Gross					307	476	439	350	8,760
					783		790		
Shared Trips					31	48	44	35	876
					78		79		
Pass-By Trips					164	164	147	147	3,154
					328		293		
Totals - Net*					**112**	**264**	**249**	**169**	**4,730**
					376		**417**		

Further, the ITE Trip Generation Handbook, 3rd Edition, outlines a procedure to account for shared trips and pass-by trips within a proposed development which is reflected in Table 2. Shared trips are trips that visit more than one use within a multi-use development. For example, a resident of an apartment may also be a patron of a retail shop within a development and would not generate a new trip to visit the retail shop. ITE suggests between 10 and 40 percent of the traffic destined to retail from residential and visa versa can occur based on time of day. This analysis assumes 10 percent of the site traffic will be shared. Pass-by trips are those trips already using the adjacent roadway and enter the site as an intermediate stop on their way to another destination. The pass-by trips are not generated by the land use under study, and thus, are not new trips added to the network but are trips using the site accesses. The proposed retail uses within the Proposed Project are estimated to generate a larger amount of pass-by vehicle traffic than is realistic for this area as the roadways currently have lower volumes than the estimated pass-by trips. In order to be more accurate yet conservative in terms of traffic impacts, the traffic analysis does not assume any pass-by traffic at the intersections of CSAH 12 with Hoffman Rd and with 211th Ln. (This assumption is quite conservative when considering conditions in 2045 when the forecast traffic passing the site will be greater.) Table 3 reflects the trip generation for the Proposed Project without pass-by traffic that has been analyzed for this report.

Table 3 - Trip Generation w/o Pass-By

Land Use	Type	Block No.	Land Use Code	Size	Trips Generated: AM peak Enter	AM peak Exit	PM Peak Enter	PM Peak Exit	Weekday ADT
Mid-Rise Apartment/Suburban	Residential	1	221	713 units	62	195	170	108	3,237
Single Family Housing	Residential	1	210	112 units	20	58	66	39	1,056
Shopping Center	Retail	2	822	6,250 s.f.	9	6	21	21	343
Convenience Store/Gas Station	Retail	2	945	16 fuel pos.	216	216	182	182	4,114
Totals - Gross					307	475	439	350	8,751
					782		789		
Shared Trips					31	48	44	35	875
					78		79		
Pass-By Trips					0	0	0	0	0
					0		0		
Totals - Net*					**276**	**428**	**395**	**315**	**7,876**
					704		**710**		

As shown in Table 3, the Proposed Project will generate 704 trips (276 entering and 428 exiting) during the morning traffic peak hour, 710 trips (395 entering and 315 exiting) during the evening traffic peak hour and 7,876 daily trips.

The new trips have been assigned to the surrounding roadways according to the existing traffic patterns, and according to travel time forecasts from Apple Maps, and Google Maps. The distribution is consistent

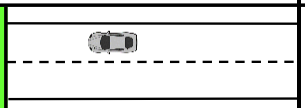
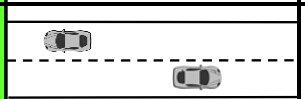
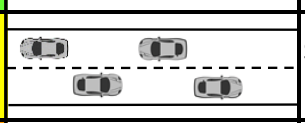
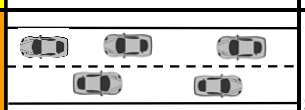
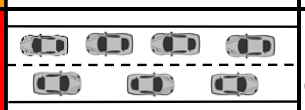
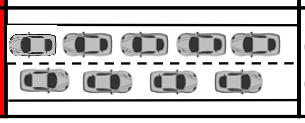
with the MAPO 2045 Plan and reflects the shortest travel time trips paths to destinations along Madison Avenue, Mankato State University, downtown Mankato, North Mankato, or outside the area. In general, the site traffic is distributed to the study area as follows:

- To/from the north 46 percent
- To/from the west 27 percent
- To/from the south 27 percent

Figure 7 illustrates the trip assignment. **Figures 8 & 9** illustrates the 2025 and 2045 Build conditions, respectively, by combining No-Build traffic with the trip assignment volumes.

Traffic Operations

The operating conditions of transportation facilities, such as roadways, traffic signals, roundabouts and stop-controlled intersections, are evaluated based on the relationship of the theoretical capacity of a facility to the actual traffic volume on that facility. Various factors affect capacity including travel speed, roadway geometry, grade, number of travel lanes, and intersection control. The current standards for evaluating capacity and operating conditions are contained in ***Highway Capacity Manual***[2]. The procedures describe operating conditions in terms of driver delay represented as a Level of Service (LOS). Operations are given letter designations with "A" representing the best operating conditions and "F" representing the worst. Generally, level of service "D" represents the threshold for acceptable overall intersection operating conditions during a peak hour. The Chart on the following page summarizes the level of service and delay criteria for signalized and unsignalized intersections.

Level of Service		Description	Delay (sec)	
			Signalized	Unsignalized/ Roundabout
A		Primarily free-flow operation.	0-10	0-10
B		Reasonably unimpeded operation.	>10-20	>10-15
C		Stable operation. The ability to maneuver is more restricted than LOS B.	>20-35	>15-25
D		Less stable operation. Small increases in flow may cause large increases in delay and reduced speeds.	>35-55	>25-35
E		Unstable operation. Low speeds and considerable delay.	>55-80	>35-50
F		Congested operation. High delay and extensive queuing.	>80	>50

For side street stop-controlled intersections special emphasis is given to providing an estimate for the level of service of the minor approaches. Traffic operations at an unsignalized intersection with side street stop-

[2] **Highway Capacity Manual (HCM),** Transportation Research Board, 6th Edition

control can be described two ways. First, consideration is given to the overall intersection level of service. This takes into account the total number of vehicles entering the intersection and the capability of the intersection to support these volumes. Second, it is important to consider the delay on the minor approaches, since the mainline does not have to stop. It is common for intersections with higher mainline traffic volumes to experience increased levels of delay and poor level of service on the side streets.

A final fundamental component of operational analyses is a study of vehicular queuing, or the line of vehicles waiting to pass through an intersection. An intersection can operate with an acceptable Level of Service, but if queues from the intersection extend back to block entrances to turn lanes or accesses to adjacent land uses, unsafe operating conditions could result. In this report, the Industry Design Standard 95th percentile queue length is used. The 95th Percentile Queue Length refers to that length of vehicle queue that has only a five-percent probability of occurring during an analysis hour.

This study has utilized the industry current Synchro/SimTraffic software package (11th Edition) to analyze the 2025 and 2045 No-Build and Build conditions for the AM and PM peak hours. It is noted, the reported results for the non-roundabout intersections are from the aggregate of 10 SimTraffic simulations which use a random number generator to seed the network with vehicles. These results reflect dynamic conditions and are more accurate for the non-roundabout intersections than the results of the static analysis reported by Synchro. Due to the random number generator results can sometimes show slightly better operations on minor movements under higher traffic conditions when the intersections are operating well. This can be seen when delays and queues noted in the Build Scenario are slightly less than the No-Build Scenarios. The results from the roundabout analysis are from the Synchro analysis which uses the methods developed for SIDRA (as adopted by the FHWA).

Analysis Results

Tables 4 summarizes the results of the operational analysis for the 2025 No-Build and Build Conditions. Note the 2025 No-Build and Build operations reflect the additional traffic associated with the annual growth rate applied to existing traffic volumes. Additionally, the Build operations include the net new traffic forecast for the Proposed Project.

Table 4
2025 No-Build and Build Traffic Operations

Intersection	Measure of Effectiveness (Delay in Sec and Queue in Ft)				
	Criteria	2025 No-Build		2025 Build	
		AM Pk Hr	PM Pk Hr	AM Pk Hr	PM Pk Hr
TH 22 & Hoffman Rd (Signal)	*Overall LOS & Delay*	C 22.0	C 20.1	C 24.6	C 21.6
	Worst Mvmt. LOS & Delay	D 44.1 (NBL)	D 54.7 (NBL)	D 42.5 (NBL)	D 41.3 (SBL)
	95th Percentile Queue	WBT - 378'	SBL - 198'	WBT - 374'	SBT - 238'
CSAH 12 & Hoffman Rd (RaB)	*Overall LOS & Delay*	A 2.8	A 2.7	A 4.2	A 4.3
	Worst Mvmt. LOS & Delay	A 4.2 (NB)	A 3.9 (NB)	A 4.4 (WB)	A 5.6 (EB)
	95th Percentile Queue	NB - 18'	NONE	EB - 20'	EB - 22'
CSAH 12 & 211th Ln (Stop Control)	*Overall LOS & Delay*	A 0.4	A 0.2	A 1.2	A 1.0
	Worst Mvmt. LOS & Delay	A 2.4 (WB)	A 1.7 (WB)	A 7.1 (WB)	A 5.7 (WB)
	95th Percentile Queue	WB - 21'	SBL - 9'	WB - 46'	WB - 29'

The results shown in Table 4 indicate the 2025 No-Build operations of the study area intersections are acceptable with LOS C or better for overall operations, and acceptable operations for directional and individual travel lane operations, with manageable vehicle queuing. Further, the results in Table 4 indicate the 2025 Build overall operations and travel lane operations of the study area intersections and site access

are the same with acceptable LOS C or better for overall operations and acceptable operations for directional and individual travel lane operations, with manageable vehicle queuing. It is noted the westbound queue in the AM Peak for both scenarios does block the access to the turn lanes, however, the SimTraffic simulation shows these queues clear each cycle. These results suggest that no roadway improvements beyond the construction of Hoffman Rd to the east of CSAH 12 are required to accommodate the forecast traffic from the development, but the westbound approach to TH 22 should be monitored for future extension of the right turn lane.

Table 5
2045 No-Build and Build Traffic Operations

Intersection	Measure of Effectiveness (Delay in Sec and Queue in Ft)				
	Criteria	2045 No-Build		2045 Build	
		AM Pk Hr	PM Pk Hr	AM Pk Hr	PM Pk Hr
TH 22 & Hoffman Rd (Signal)	*Overall LOS & Delay*	C 31.1	C 22.6	D 40.9	C 29.5
	Worst Mvmt. LOS & Delay	E 63.6 (SBL)	D 44.6 (SBL)	E 78.4 (SBL)	D 43.2 (NBL)
	95th Percentile Queue	WB - 665'	SBT - 279'	WBT 786'	SBT 368'
CSAH 12 & Hoffman Rd (RaB)	*Overall LOS & Delay*	A 5.8	A 5.2	A 9.2	A 9.4
	Worst Mvmt. LOS & Delay	A 9.1 (NB)	A 7.5 (NB)	B 14.3 (NB)	B 11.3 (NB)
	95th Percentile Queue	NB - 62'	NB - 48'	NB - 130'	SB - 128'
CSAH 12 & 211th Ln (Stop Control)	*Overall LOS & Delay*	A 1.1	A 0.9	A 2.4	A 2.4
	Worst Mvmt. LOS & Delay	A 3.4 (WB)	A 2.5 (WB)	C 24.6 (WB)	C 15.9 (WB)
	95th Percentile Queue	WB - 20'	SBL - 26'	WB - 49'	WB 29'

The results shown in Table 5 indicate the AM Peak 2045 No-Build and Build operations at the intersection of TH 22 and Hoffman Rd is approaching capacity, with poor operations for the southbound left turning movement and long vehicle queues on the westbound Hoffman Rd approach. The other study area intersections are operating at LOS A, with minor movements at level of service C or better for both the No-Build and Build conditions.

As stated earlier, this analysis includes background growth based on MAPO forecasts that include the development of the subject property and includes site traffic that has not been adjusted to reflect pass-by conditions. That said, if necessary, by 2045 MnDOT may need to redesign the TH 22 and Hoffman Rd intersection to provide additional capacity. Preliminary review of mitigation strategies suggest that the traffic operations at the intersection of TH 22 and Hoffman Rd could be improved by modifying the traffic signal operations on TH 22 to include protected/permissive phasing for the north and southbound left turning traffic, and by modifying the westbound approach to provide two through lanes, the right most lane serving as a share through and right. This extra through lane should extend to the intersection of Hoffman Rd and Coneflower Ln. This change will also modify the southbound approach by reducing the protective right turn island and changing the southbound to westbound right turn from free flowing to yield controlled. This modification will result in overall 2045 AM Peak Build operations at the TH 22 intersection of LOS D (37.2 sec of delay) and worst movement operations for the westbound left at LOS D (53.2 sec of delay), and will reduce the queue on the westbound approach to a manageable 418 feet. These strategies are just suggestions for low cost alternatives to provide acceptable operations until areawide improvements occur.

It is noted that MnDOT completed a corridor study in 2018 for TH 22, which suggested that traffic control at Hoffman Rd be converted to a 2-lane roundabout with mainline metering and right-turn bypass lanes for all approaches by year 2045. Review of operations with this improvement show acceptable overall level of service and delay at TH 22 and Hoffman Rd. That said, this improvement is not currently programmed. The City supports MNDOT in the review of other design alternatives to provide long range capacity enhancements in area.

Summary and Conclusions

The following provides a summary of the study, traffic operations and recommendations:

- AM and PM peak hour traffic operations were analyzed for the 2025 and 2045 conditions without and with the Proposed Project.
- The Proposed Project will generate 704 trips (276 entering and 428 exiting) during the morning traffic peak hour, 710 trips (395 entering and 315 exiting) during the evening traffic peak hour and 7,876 daily trips.
- Results of the traffic analysis for year 2025 for both the AM and PM peaks without the Proposed Project indicate acceptable operations with minimal vehicle delay and back-ups at adjacent intersections.
- Results of the traffic analysis for year 2025 for both the AM and PM peaks with the Proposed Project indicate acceptable operations with minimal vehicle delay and back-ups.
- Results of the traffic analysis for year 2045 AM Peak with and without the Proposed Project indicate the intersection of TH 22 and Hoffman Rd will be approaching capacity without improvements, long delays and long vehicle queues for some movements.
- Results of the traffic analysis for year 2045 PM Peak with and without the Proposed Project indicate acceptable operations with minimal vehicle delay and back-ups.

No mitigation measures are required to accommodate site generated traffic. That said, if conditions deteriorate at the intersection of TH 22 and Hoffman Road by 2045, MnDOT should consider redesigning the intersection. Potential minimal improvements including extension of the existing westbound right turn lane back to Coneflower Lane and conversion of the lane to a shared through and right turn lane will provide adequate additional capacity. The new through and right turn lane from Coneflower Lane will require the reduction of the TH 22 southbound to westbound protective island and will change the right turn movement to permissive rather than free flowing. Preliminary analysis indicates this improvement alone will provide adequate LOS for the intersection and all approaches. Also, protected permissive traffic signal phasing on the north and southbound TH 22 approaches which is currently used at the TH 22 and Bassett Drive intersection could be considered. It is noted, the TH 22 volumes are greater at Bassett Drive, and the speed through the Bassett Drive intersection is only 45 mph. The change to protected/permissive phasing may or may not be practical as the speeds on TH 22 presently are 55 mph through the Hoffman Road intersection. That said, with the MAPO emphasis on urbanizing the study area through the year 2045 it is possible the speed on TH 22 will be reduced through the Hoffman Road intersection in the future. This improvement by itself would not restore operations to acceptable levels but could enhance the LOS by reducing overall delay. For long term areawide strategies it is suggested some of the potential improvements included in MnDOT's TH 22 Corridor study be reviewed and further developed.

Attachments: Figures 1-9
(The Appendices with Traffic Counts and Synchro/Simtraffic Worksheets are available upon request.)

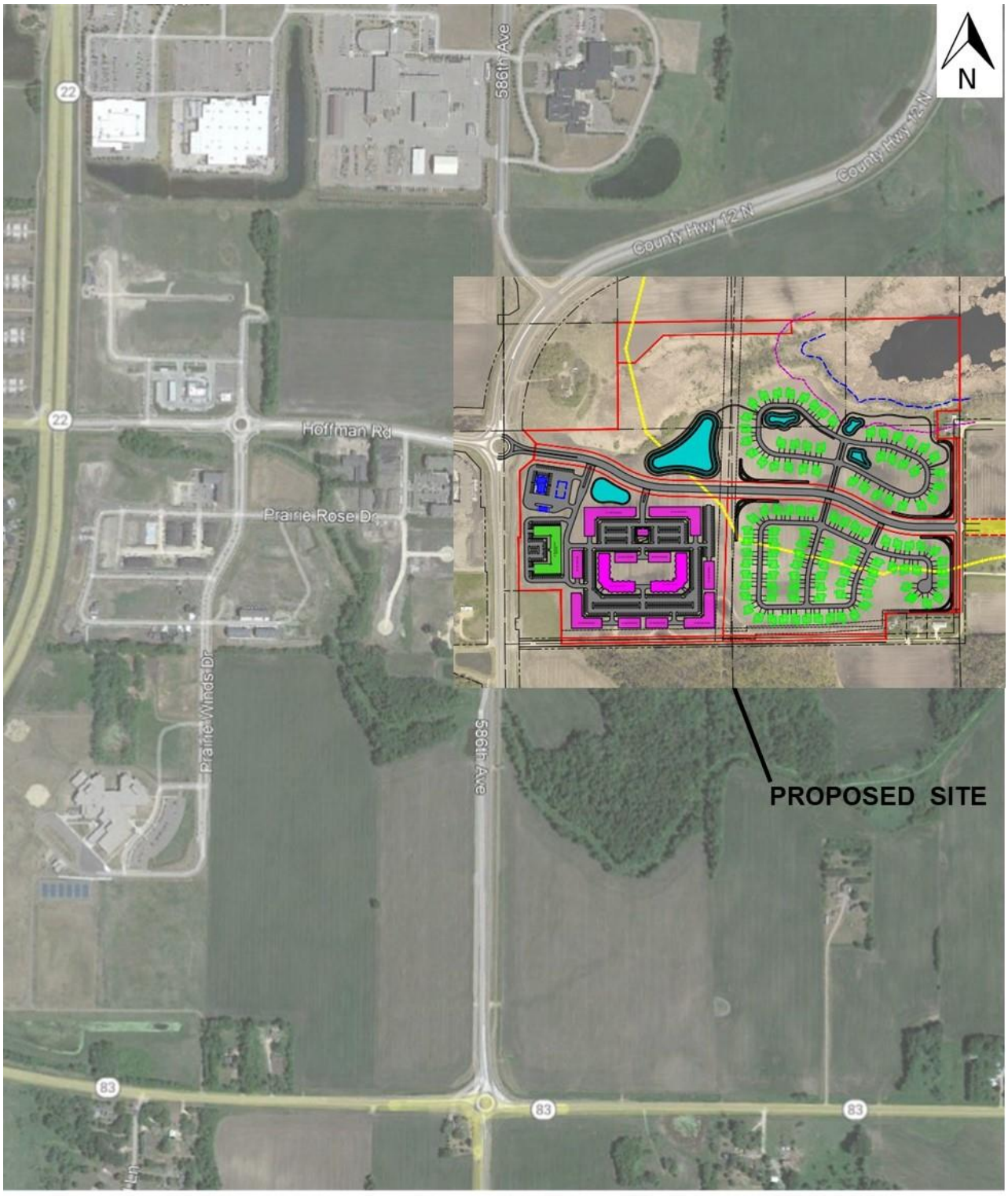


Figure 1 - Vicinity Map

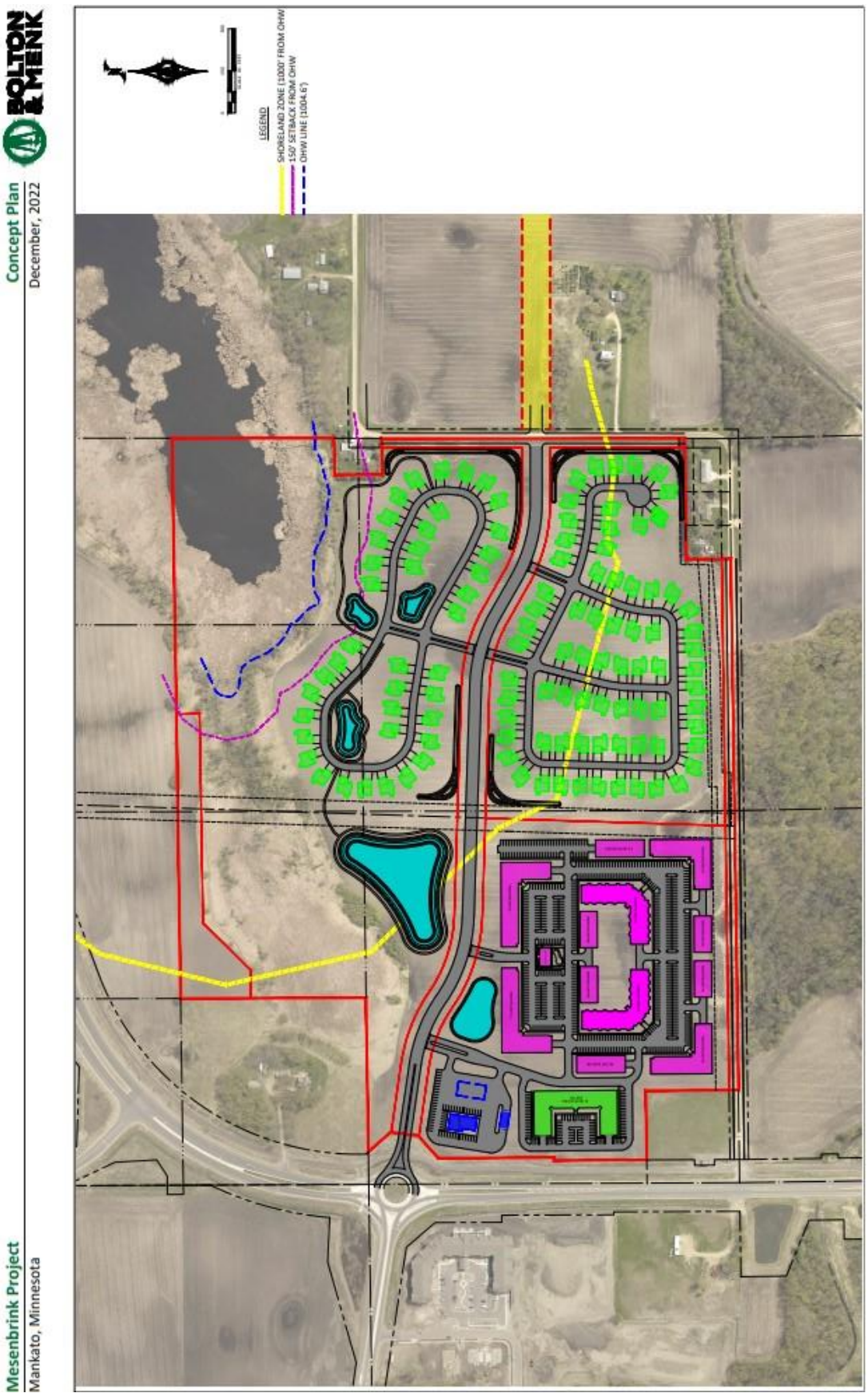


Figure 2 – Site Plan (By Others)

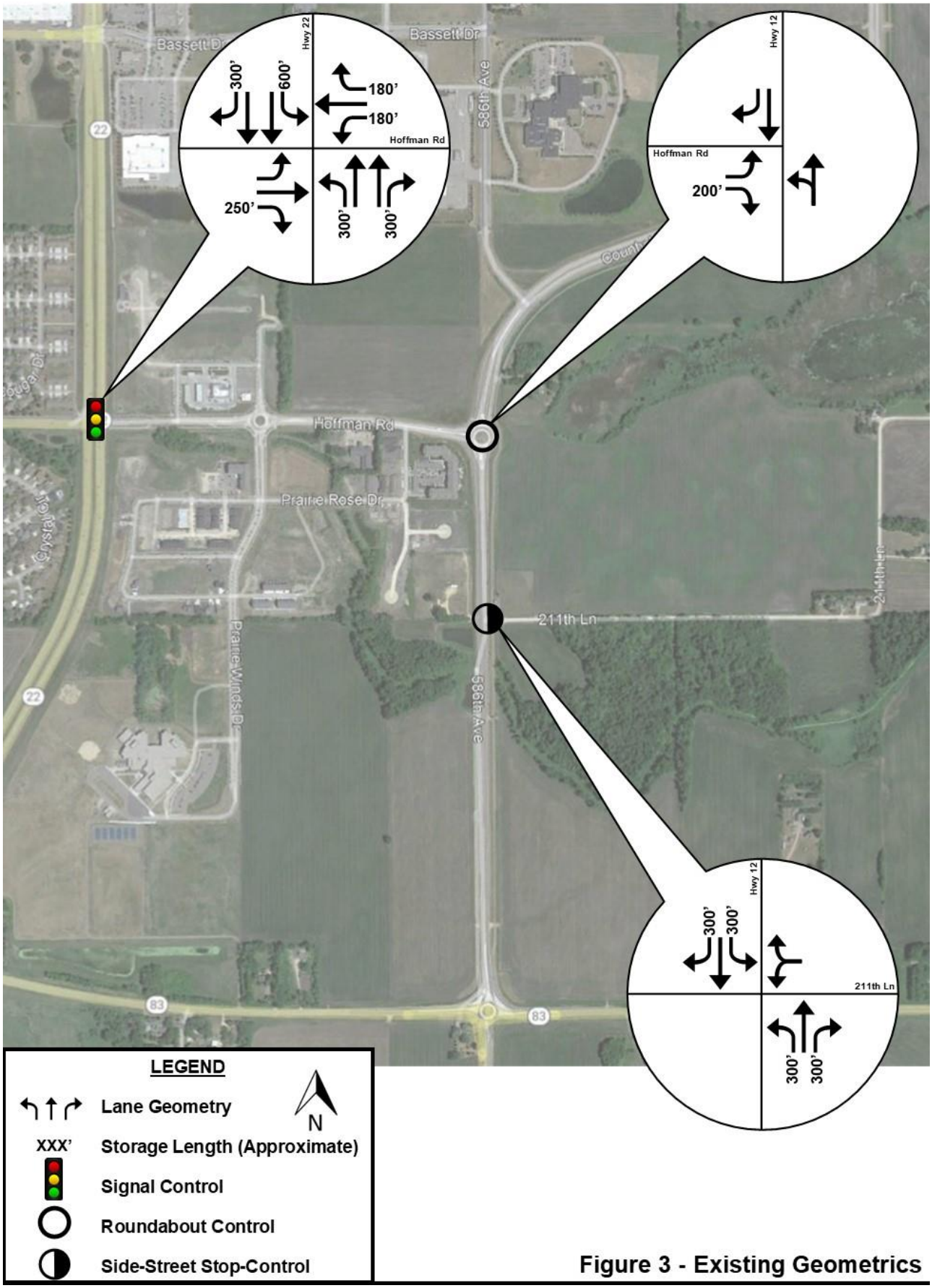


Figure 3 - Existing Geometrics

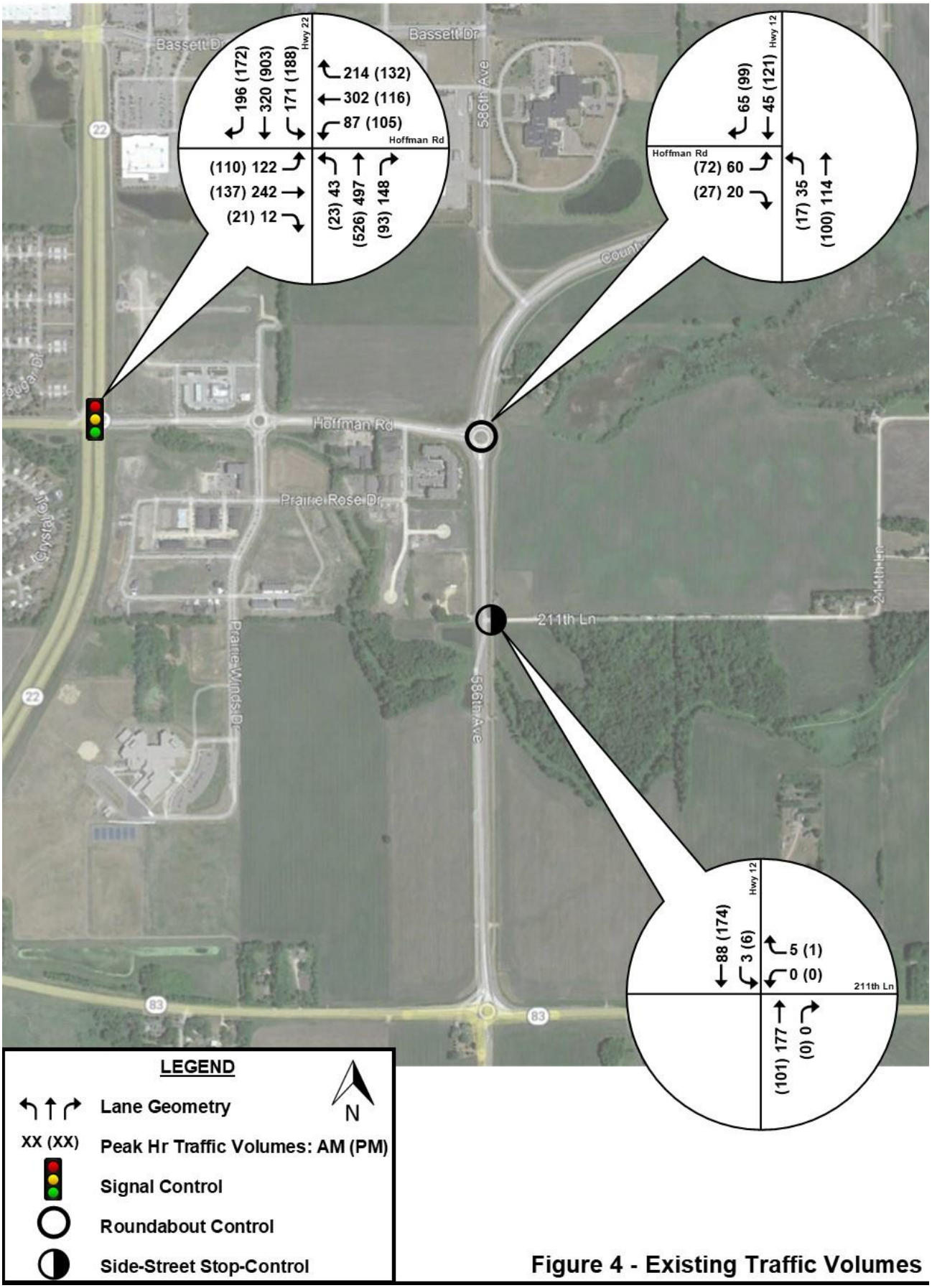


Figure 4 - Existing Traffic Volumes

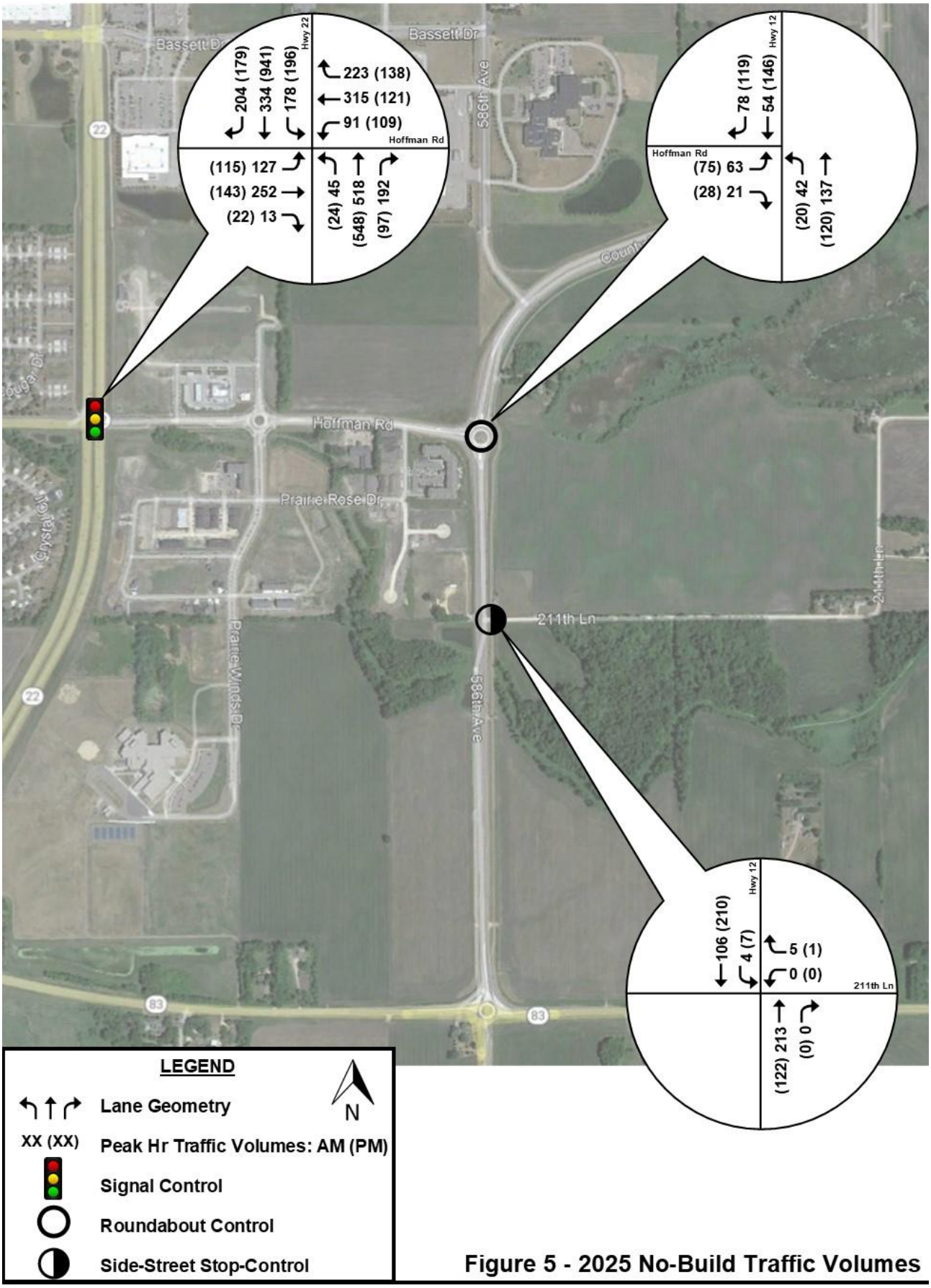


Figure 5 - 2025 No-Build Traffic Volumes

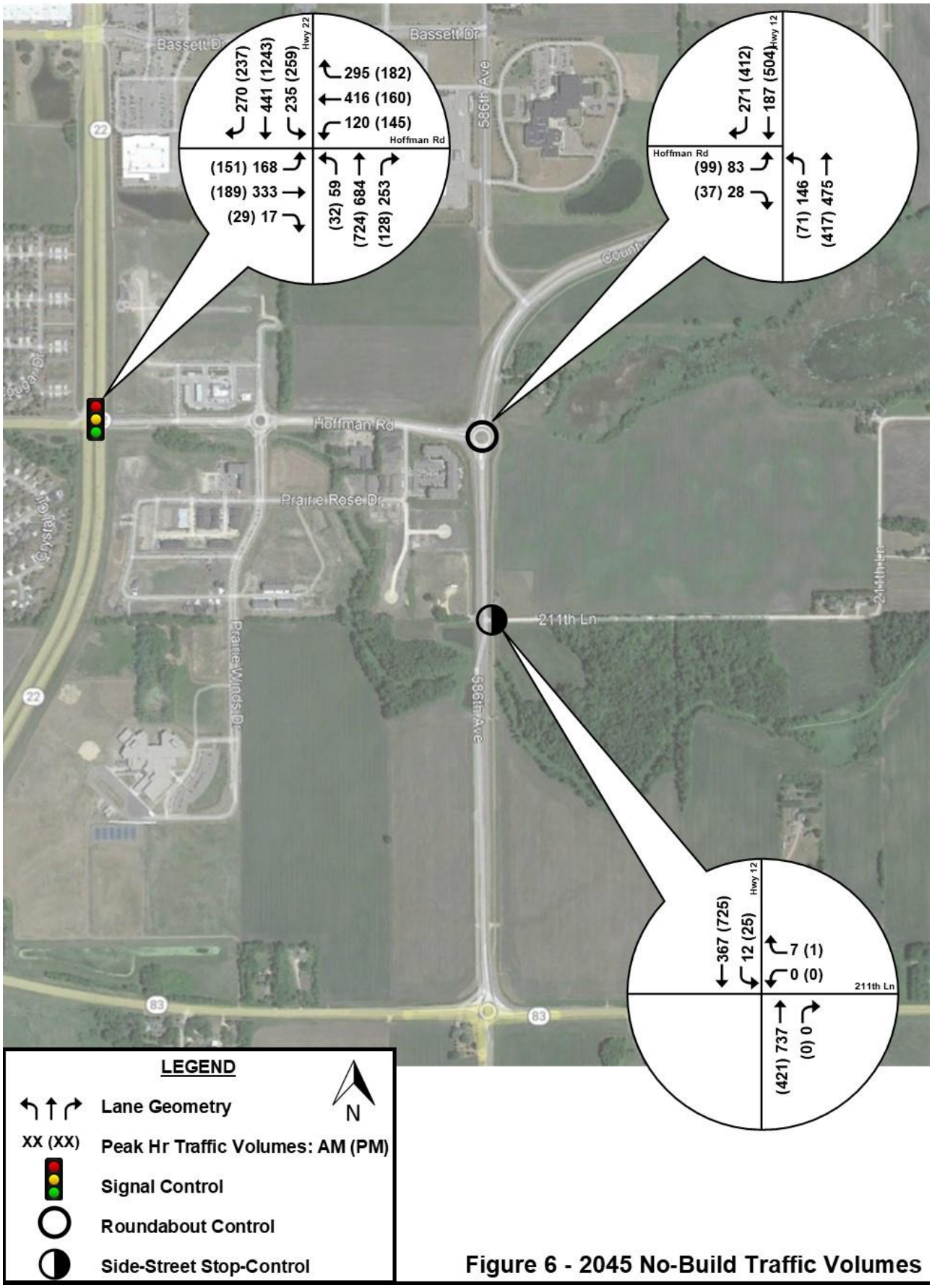


Figure 6 - 2045 No-Build Traffic Volumes

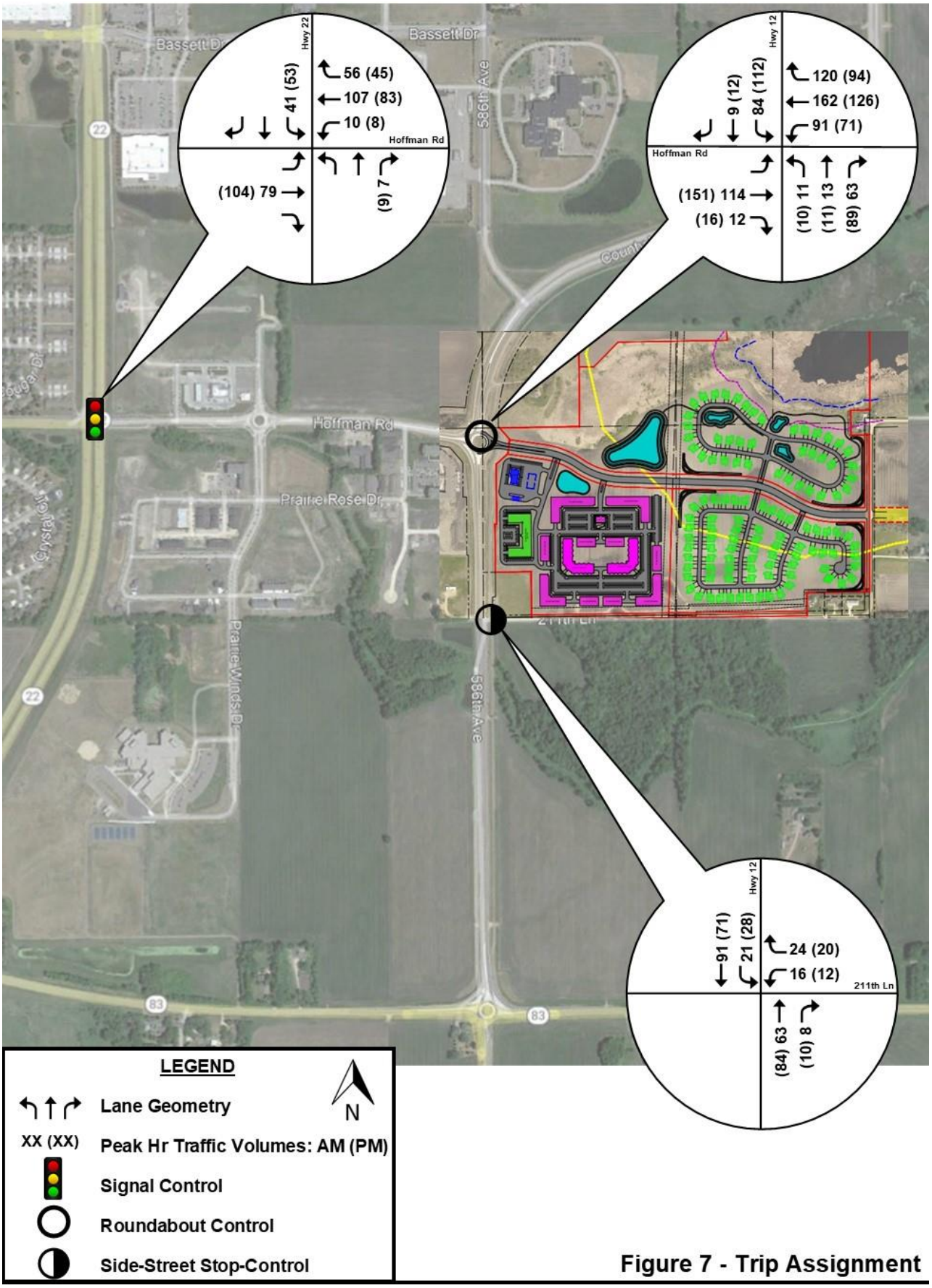


Figure 7 - Trip Assignment

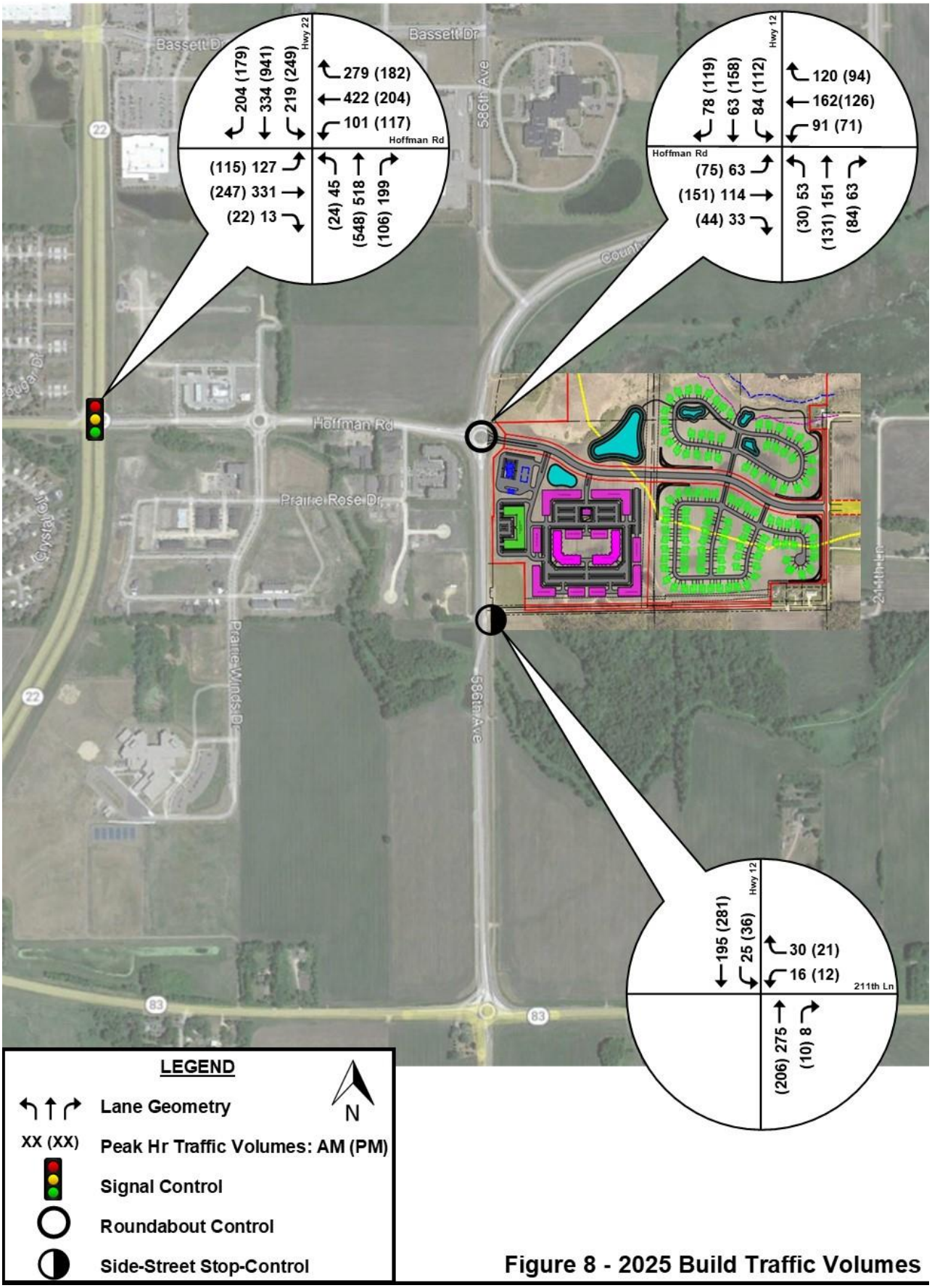


Figure 8 - 2025 Build Traffic Volumes

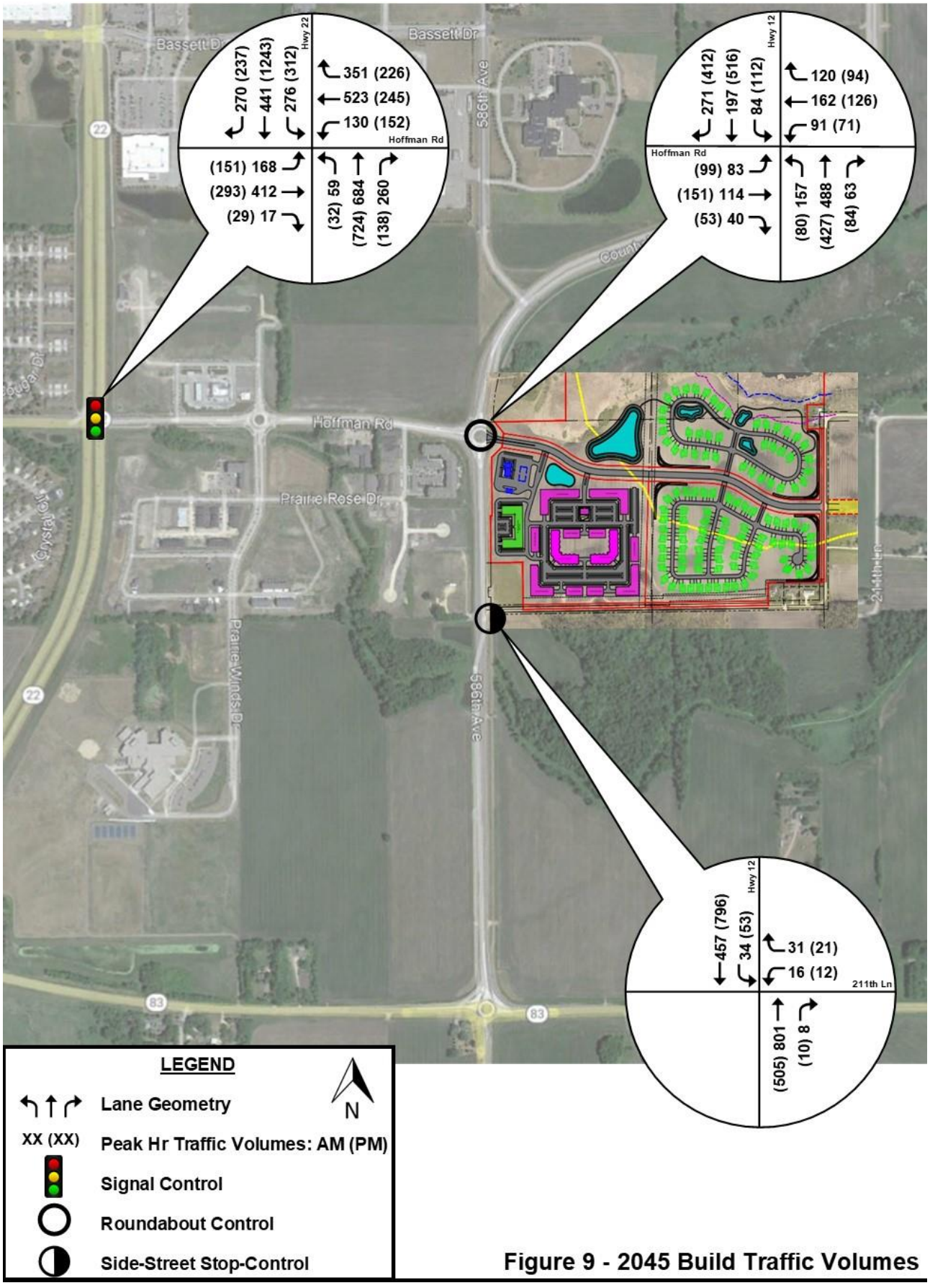


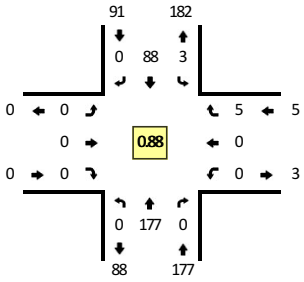
Figure 9 - 2045 Build Traffic Volumes

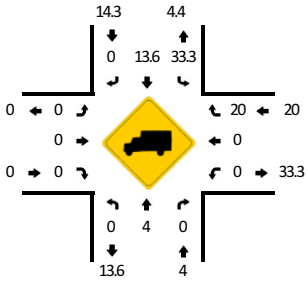
Appendix A: Traffic Counts

Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

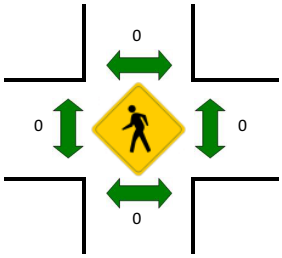
LOCATION: 586th Ave -- 211th Ln (Twp Rd 283) | **QC JOB #:** 15918803
CITY/STATE: Blue Earth, MN | **DATE:** Thu, Sep 8 2022

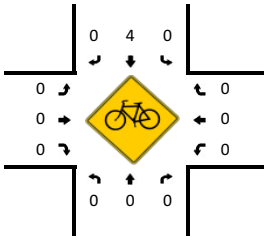
Peak-Hour: 7:15 AM -- 8:15 AM
Peak 15-Min: 7:45 AM -- 8:00 AM

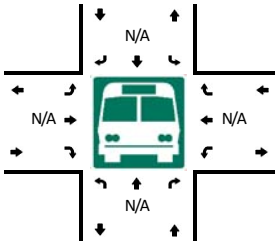


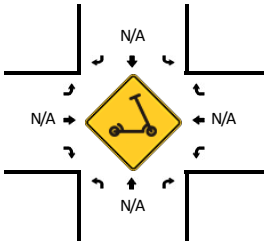


Quality Counts
DATA THAT DRIVES COMMUNITIES









15-Min Count Period Beginning At	586th Ave (Northbound)				586th Ave (Southbound)				211th Ln (Twp Rd 283) (Eastbound)				211th Ln (Twp Rd 283) (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	27	0	0	0	12	0	0	0	0	0	0	0	0	0	0	39	
7:15 AM	0	39	0	0	1	23	0	0	0	0	0	0	0	0	1	0	64	
7:30 AM	0	40	0	0	0	15	0	0	0	0	0	0	0	0	1	0	56	
7:45 AM	0	53	0	0	1	21	0	0	0	0	0	0	0	0	3	0	78	237
8:00 AM	0	45	0	0	1	29	0	0	0	0	0	0	0	0	0	0	75	273
8:15 AM	0	28	0	0	0	35	0	0	0	0	0	0	0	0	1	0	64	273
8:30 AM	0	25	0	0	0	26	0	0	0	0	0	0	0	0	0	0	51	268
8:45 AM	0	13	0	0	0	15	0	0	0	0	0	0	0	0	0	0	28	218

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	212	0	0	4	84	0	0	0	0	0	0	0	0	12	0	312
Heavy Trucks	0	12	0		0	8	0		0	0	0		0	0	0		20
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

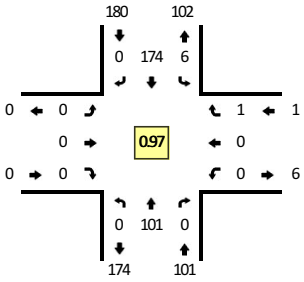
Comments:

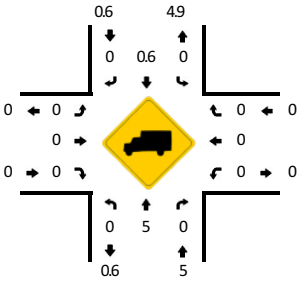
Report generated on 9/14/2022 9:47 AM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

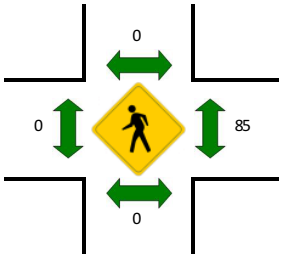
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

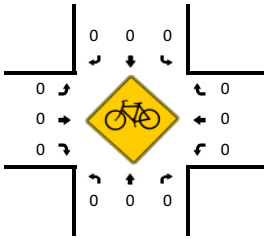
LOCATION: 586th Ave -- 211th Ln (Twp Rd 283) | **QC JOB #:** 15918804
CITY/STATE: Blue Earth, MN | **DATE:** Wed, Sep 7 2022

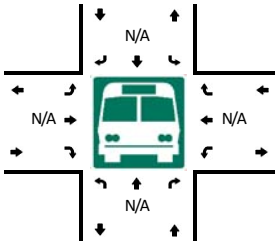
Peak-Hour: 4:15 PM -- 5:15 PM
Peak 15-Min: 4:45 PM -- 5:00 PM

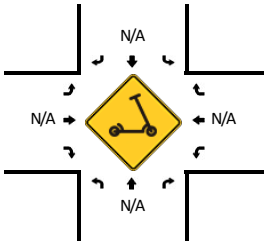












15-Min Count Period Beginning At	586th Ave (Northbound)				586th Ave (Southbound)				211th Ln (Twp Rd 283) (Eastbound)				211th Ln (Twp Rd 283) (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	20	0	0	1	36	0	0	0	0	0	0	1	0	0	0	58	
4:15 PM	0	26	0	0	0	39	0	0	0	0	0	0	0	0	1	0	66	
4:30 PM	0	25	0	0	1	45	0	0	0	0	0	0	0	0	0	0	71	
4:45 PM	0	29	0	0	4	40	0	0	0	0	0	0	0	0	0	0	73	268
5:00 PM	0	21	0	0	1	50	0	0	0	0	0	0	0	0	0	0	72	282
5:15 PM	0	18	0	0	1	47	0	0	0	0	0	0	0	0	0	0	66	282
5:30 PM	0	20	0	0	2	42	0	0	0	0	0	0	0	0	3	0	67	278
5:45 PM	0	24	0	0	0	20	0	0	0	0	0	0	1	0	1	0	46	251

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	116	0	0	16	160	0	0	0	0	0	0	0	0	0	0	292
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	0	0		0
Buses																	
Pedestrians		0				0				0				148			148
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 9/14/2022 9:47 AM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

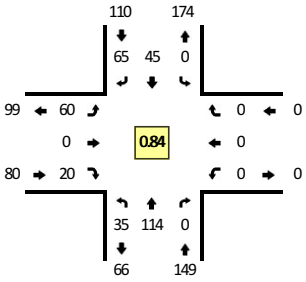
Type of peak hour being reported: Intersection Peak

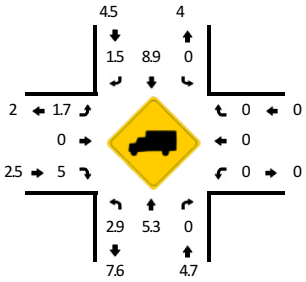
Method for determining peak hour: Total Entering Volume

LOCATION: CSAH 12/586th Ave -- Hoffman Rd
CITY/STATE: Mankato, MN

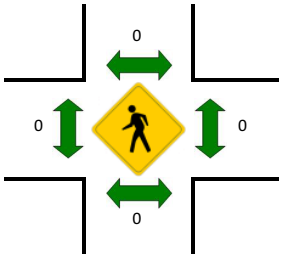
QC JOB #: 15918801
DATE: Thu, Aug 25 2022

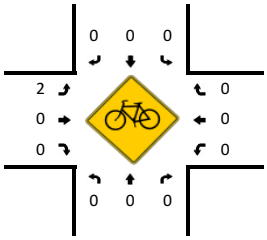
Peak-Hour: 7:15 AM -- 8:15 AM
Peak 15-Min: 7:45 AM -- 8:00 AM

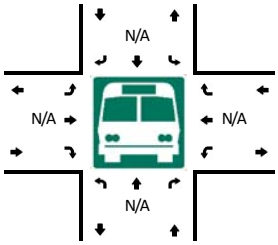


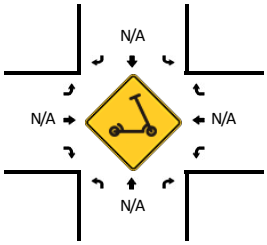


Quality Counts
DATA THAT DRIVES COMMUNITIES









15-Min Count Period Beginning At	CSAH 12/586th Ave (Northbound)				CSAH 12/586th Ave (Southbound)				Hoffman Rd (Eastbound)				Hoffman Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	5	6	0	0	0	12	14	0	8	0	5	0	0	0	0	0	50	
7:15 AM	6	30	0	0	0	12	17	0	17	0	2	0	0	0	0	0	84	
7:30 AM	7	23	0	0	0	11	22	0	19	0	3	0	0	0	0	0	85	
7:45 AM	13	34	0	1	0	18	13	0	13	0	9	0	0	0	0	0	101	320
8:00 AM	8	27	0	0	0	4	13	0	11	0	6	0	0	0	0	0	69	339
8:15 AM	9	18	0	0	0	8	25	0	6	0	5	0	0	0	0	0	71	326
8:30 AM	2	17	0	0	0	10	15	0	14	0	0	0	0	0	0	0	58	299
8:45 AM	3	12	0	0	0	11	20	0	6	0	4	2	0	0	0	0	58	256

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	52	136	0	4	0	72	52	0	52	0	36	0	0	0	0	0	404
Heavy Trucks	0	8	0		0	8	0		0	0	0		0	0	0		16
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 8/31/2022 9:04 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

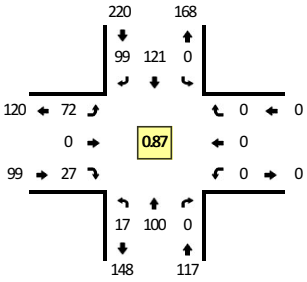
Type of peak hour being reported: Intersection Peak

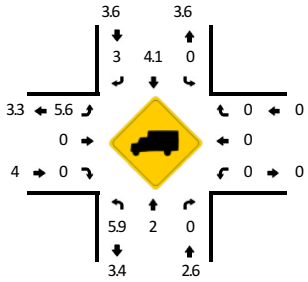
Method for determining peak hour: Total Entering Volume

LOCATION: CSAH 12/586th Ave -- Hoffman Rd
CITY/STATE: Mankato, MN

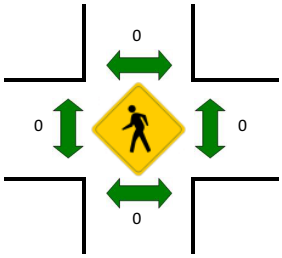
QC JOB #: 15918802
DATE: Thu, Aug 25 2022

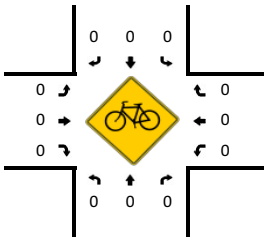
Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 4:30 PM -- 4:45 PM

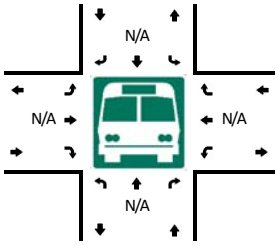


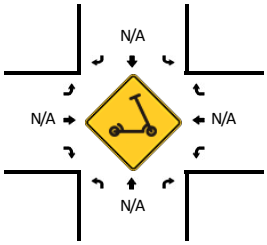


Quality Counts
DATA THAT DRIVES COMMUNITIES









15-Min Count Period Beginning At	CSAH 12/586th Ave (Northbound)				CSAH 12/586th Ave (Southbound)				Hoffman Rd (Eastbound)				Hoffman Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	4	23	0	0	0	18	19	1	16	0	11	0	0	0	0	0	92	
4:15 PM	4	20	0	0	0	23	14	0	17	0	9	0	0	0	0	0	87	
4:30 PM	2	30	0	0	0	42	26	0	18	0	4	3	0	0	0	0	125	
4:45 PM	4	34	0	0	0	29	16	0	17	0	12	1	0	0	0	0	113	417
5:00 PM	5	16	0	0	0	26	28	0	24	0	7	0	0	0	0	0	106	431
5:15 PM	6	20	0	0	0	24	29	0	9	0	4	0	0	0	0	0	92	436
5:30 PM	3	13	0	0	0	18	20	0	16	0	9	1	0	0	0	0	80	391
5:45 PM	4	11	0	0	0	18	17	0	12	0	9	2	0	0	0	0	73	351

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	8	120	0	0	0	168	104	0	72	0	16	12	0	0	0	0	500
Heavy Trucks	0	4	0		0	8	4		4	0	0		0	0	0		20
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 8/31/2022 9:04 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

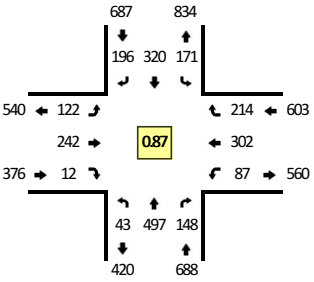
Type of peak hour being reported: Intersection Peak

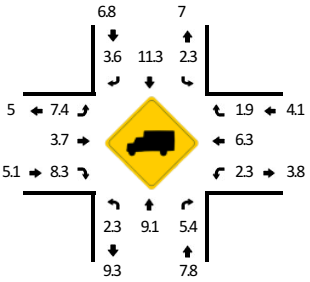
Method for determining peak hour: Total Entering Volume

LOCATION: MN-22 -- Hoffman Rd
CITY/STATE: Mankato, MN

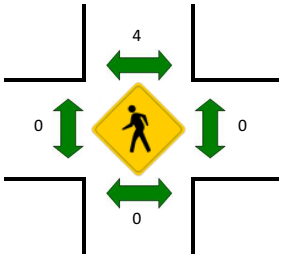
QC JOB #: 15918805
DATE: Thu, Sep 8 2022

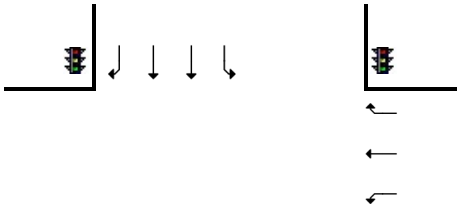
Peak-Hour: 7:45 AM -- 8:45 AM
Peak 15-Min: 8:15 AM -- 8:30 AM

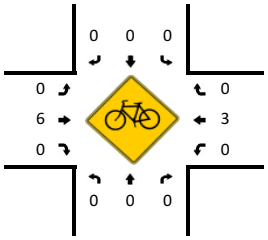


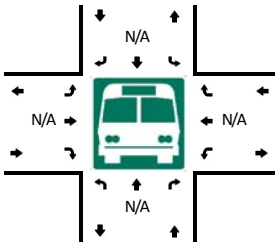


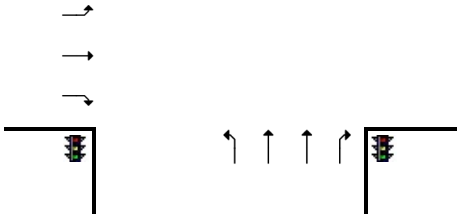
Quality Counts
DATA THAT DRIVES COMMUNITIES

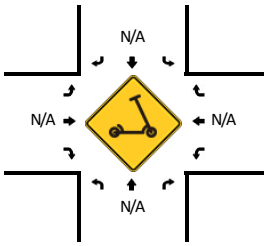












15-Min Count Period Beginning At	MN-22 (Northbound)				MN-22 (Southbound)				Hoffman Rd (Eastbound)				Hoffman Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	5	129	25	0	12	57	5	0	14	18	6	0	10	17	24	0	322	
7:15 AM	4	119	21	0	25	66	8	0	34	19	3	0	7	11	23	0	340	
7:30 AM	6	138	30	0	24	67	21	0	19	25	5	0	13	25	32	0	405	
7:45 AM	4	169	37	0	39	82	20	0	29	67	1	0	9	48	36	0	541	1608
8:00 AM	8	121	59	1	68	68	35	1	26	78	5	0	20	71	70	0	631	1917
8:15 AM	15	124	38	0	48	80	70	0	33	65	2	0	34	95	75	0	679	2256
8:30 AM	15	83	14	0	15	90	71	0	34	32	4	0	24	88	33	0	503	2354
8:45 AM	1	113	15	0	11	85	14	0	26	16	1	0	14	25	18	0	339	2152

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	60	496	152	0	192	320	280	0	132	260	8	0	136	380	300	0	2716
Heavy Trucks	4	48	28		4	28	4		12	28	4		0	24	4		188
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 9/14/2022 9:47 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

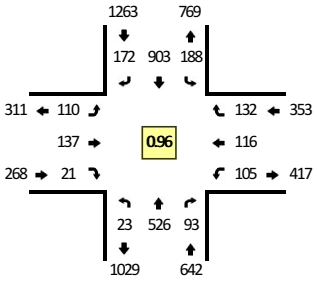
Type of peak hour being reported: Intersection Peak

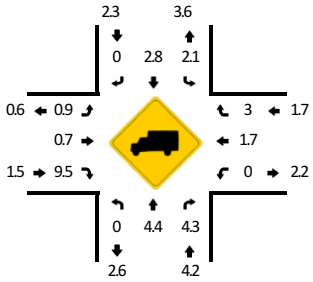
Method for determining peak hour: Total Entering Volume

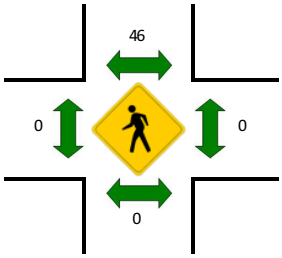
LOCATION: MN-22 -- Hoffman Rd
CITY/STATE: Mankato, MN

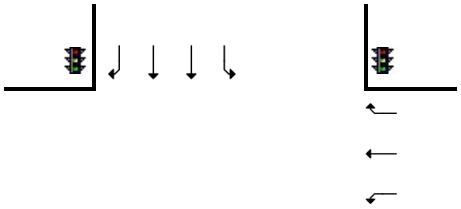
QC JOB #: 15918806
DATE: Wed, Sep 7 2022

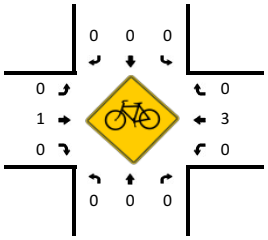
Peak-Hour: 4:45 PM -- 5:45 PM
Peak 15-Min: 5:00 PM -- 5:15 PM

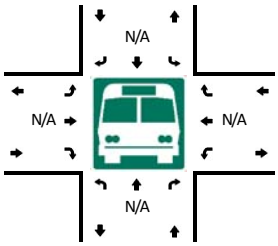


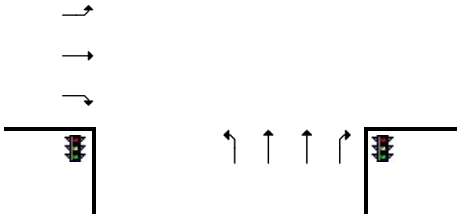


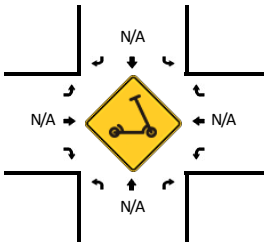












15-Min Count Period Beginning At	MN-22 (Northbound)				MN-22 (Southbound)				Hoffman Rd (Eastbound)				Hoffman Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	5	156	26	0	29	176	36	1	30	24	4	0	20	22	23	0	552	
4:15 PM	3	145	18	0	27	217	49	1	27	25	7	0	12	14	25	0	570	
4:30 PM	5	147	18	0	37	196	44	0	36	24	5	0	27	15	20	0	574	
4:45 PM	3	141	20	0	49	232	30	0	34	40	5	0	25	20	29	0	628	2324
5:00 PM	6	144	25	0	48	244	48	0	16	27	0	0	30	34	37	0	659	2431
5:15 PM	5	140	20	0	39	227	40	0	24	27	9	0	22	25	27	0	605	2466
5:30 PM	9	101	28	0	51	200	54	1	36	43	7	0	28	37	39	0	634	2526
5:45 PM	8	125	17	0	29	163	47	0	40	28	5	0	29	46	34	0	571	2469

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	24	576	100	0	192	976	192	0	64	108	0	0	120	136	148	0	2636
Heavy Trucks	0	24	12		4	20	0		4	0	0		0	0	4		68
Buses																	
Pedestrians		0				40				0				0			40
Bicycles	0	0	0		0	0	0		0	0	0		0	4	0		4
Scooters																	

Comments:

Report generated on 9/14/2022 9:47 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Appendix B: Synchro/Simtraffic Worksheets

2025 AM Build SimTraffic Report

5: TH 22 & Hoffman Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.2	0.3	2.7	1.6	0.8	1.8	2.6	0.3	2.5	2.9	0.3	2.9
Total Del/Veh (s)	27.5	27.0	5.7	26.6	33.4	11.9	42.5	32.0	11.9	35.6	19.0	4.0

5: TH 22 & Hoffman Rd Performance by movement

Movement	All
Denied Del/Veh (s)	1.2
Total Del/Veh (s)	24.6

10: Highway 12 & Hoffman Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.6	0.4	2.5	0.0	0.0	0.0	0.2	0.2	0.1
Total Del/Veh (s)	7.1	3.8	6.0	9.3	9.2	6.3	4.1	5.7	2.9	3.3	6.6	1.7

10: Highway 12 & Hoffman Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.3
Total Del/Veh (s)	5.2

15: Highway 12 & 211th Lane Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.1	0.1	0.3	3.0	0.5	0.0	0.3
Total Del/Veh (s)	7.1	3.0	0.7	0.2	3.1	1.2	1.2

Total Network Performance

Denied Del/Veh (s)	1.1
Total Del/Veh (s)	24.2

Intersection: 5: TH 22 & Hoffman Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	T	R	L	T
Maximum Queue (ft)	142	291	52	254	494	255	89	278	243	130	176	152
Average Queue (ft)	65	164	10	67	230	104	37	135	112	57	116	71
95th Queue (ft)	112	258	36	183	374	246	73	200	193	100	168	123
Link Distance (ft)	1142	1142			2488			1490	1490			1311
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)			230	230		230	300			300	300	
Storage Blk Time (%)		1			8	0						
Queuing Penalty (veh)		0			33	0						

Intersection: 5: TH 22 & Hoffman Rd

Movement	SB
Directions Served	T
Maximum Queue (ft)	137
Average Queue (ft)	53
95th Queue (ft)	100
Link Distance (ft)	1311
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 10: Highway 12 & Hoffman Rd

Movement	EB	WB	WB	NB	NB	SB
Directions Served	LT	LT	R	LT	R	LT
Maximum Queue (ft)	71	127	74	70	41	75
Average Queue (ft)	27	57	36	24	2	28
95th Queue (ft)	64	96	61	58	17	59
Link Distance (ft)	2488	1327		1128		891
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			200		200	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 15: Highway 12 & 211th Lane

Movement	WB	SB
Directions Served	LR	L
Maximum Queue (ft)	57	28
Average Queue (ft)	16	8
95th Queue (ft)	36	28
Link Distance (ft)	1382	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		300
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 34

2025 AM Build Synchro Report

HCM 6th ROUNDABOUT	
Node #	10
Zone:	
X East (ft):	3088
Y North (ft):	-1385
Z Elevation (ft):	0
Description	
Max v/c Ratio:	0.27
Intersection Delay (s):	4.1
Intersection LOS:	A
ICU:	0.55
ICU LOS:	A
Inside Radius (ft):	28
Outside Radius (ft):	60
Roundabout Lanes (#):	1
Circle Speed (mph):	18
Inside Color:	
Transparent Circle:	☐

HCM 6th ROUNDABOUT	EB			WB			NB			SB		
Entry Lanes	1			1			1			1		
Conflicting Circle Lanes	1			1			1			1		
Exit Lanes	1			1			1			1		
Adjusted Approach Flow (vph)	226			398			288			242		
Demand Flow Rate (pc/h)	230			406			293			247		
Vehicles Circulating (pc/h)	259			294			284			334		
Vehicles Exiting (pc/h)	235			215			168			235		
Ped Vol. Crossing Leg (#/hr)	0			0			0			0		
Ped Capacity Adjustment	1.000			1.000			1.000			1.000		
Approach Delay (sec/veh)	4.3			4.2			4.3			3.4		
Approach LOS	A			A			A			A		
Lane	Left	—	Bypass	Left	—	Bypass	Left	—	Bypass	Left	—	Bypass
Follow-Up Headway (s)	2.609	—	—	2.609	—	—	2.609	—	—	2.609	—	—
Critical Headway (s)	4.976	—	—	4.976	—	—	4.976	—	—	4.976	—	—
Designated Moves	LT	—	R	LT	—	R	LT	—	R	LT	—	R
Assumed Moves	LT	—	—	LT	—	—	LT	—	—	LT	—	—
Right Turn Channelized	—	—	Free	—	—	Free	—	—	Free	—	—	Free
Lane Utilization	1.000	—	—	1.000	—	—	1.000	—	—	1.000	—	—
Entry Flow Rate (pc/h)	193	—	37	275	—	131	225	—	68	160	—	87
Capacity, Entry Lane (pc/h)	1060	—	1938	1022	—	1938	1033	—	1938	982	—	1938
Entry HV Adjustment Factor	0.982	—	0.980	0.980	—	0.980	0.981	—	0.980	0.979	—	0.980
Flow Rate, Entry (vph)	190	—	36	270	—	128	221	—	67	157	—	85
Capacity, Entry (vph)	1041	—	1900	1002	—	1900	1013	—	1900	961	—	1900
Volume to Capacity Ratio	0.182	—	0.019	0.269	—	0.067	0.218	—	0.035	0.163	—	0.045
Control Delay (sec/veh)	5.1	—	0.0	6.3	—	0.0	5.6	—	0.0	5.3	—	0.0
Level of Service	A	—	A	A	—	A	A	—	A	A	—	A
95th-Percentile Queue (veh)	1	—	0	1	—	0	1	—	0	1	—	0

2025 AM Build

2025 AM No Build SimTraffic Report

5: TH 22 & Hoffman Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.3	0.2	3.2	2.4	0.7	2.6	2.9	0.2	2.5	3.0	0.3	2.8
Total Del/Veh (s)	28.4	27.7	4.9	29.3	35.1	13.0	47.0	23.8	9.1	45.9	15.4	3.9

5: TH 22 & Hoffman Rd Performance by movement

Movement	All
Denied Del/Veh (s)	1.3
Total Del/Veh (s)	23.3

10: Highway 12 & Hoffman Rd Performance by movement

Movement	EBL	EBT	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.0
Total Del/Veh (s)	4.9	2.6	5.2	2.0	3.9	4.3	2.0	3.1

15: Highway 12 & 211th Lane Performance by movement

Movement	WBR	NBT	SBL	SBT	All
Denied Del/Veh (s)	0.1	0.2	1.4	0.0	0.1
Total Del/Veh (s)	2.1	0.3	0.9	0.2	0.3

Total Network Performance

Denied Del/Veh (s)	1.2
Total Del/Veh (s)	23.9

Intersection: 5: TH 22 & Hoffman Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	T	R	L	T
Maximum Queue (ft)	204	195	51	184	582	185	69	218	183	105	276	102
Average Queue (ft)	82	114	10	51	194	103	35	123	98	49	127	56
95th Queue (ft)	151	184	36	105	378	218	70	194	169	82	212	97
Link Distance (ft)	1142	1142			2490			1490	1490			1311
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)			230	160		160	300			300	300	
Storage Blk Time (%)					12	1						
Queuing Penalty (veh)					36	4						

Intersection: 5: TH 22 & Hoffman Rd

Movement	SB
Directions Served	T
Maximum Queue (ft)	110
Average Queue (ft)	39
95th Queue (ft)	86
Link Distance (ft)	1311
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 10: Highway 12 & Hoffman Rd

Movement	EB	NB
Directions Served	L	LT
Maximum Queue (ft)	31	18
Average Queue (ft)	6	1
95th Queue (ft)	26	6
Link Distance (ft)	2490	1127
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 15: Highway 12 & 211th Lane

Movement	WB	SB
Directions Served	LR	L
Maximum Queue (ft)	21	26
Average Queue (ft)	4	1
95th Queue (ft)	17	9
Link Distance (ft)	1382	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		300
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 40

2025 AM No Build Synchro Report

HCM 6th ROUNDABOUT	
Node #	10
Zone:	
X East (ft):	3088
Y North (ft):	-1385
Z Elevation (ft):	0
Description	
Max v/c Ratio:	0.15
Intersection Delay (s):	2.8
Intersection LOS:	A
ICU:	0.26
ICU LOS:	A
Inside Radius (ft):	28
Outside Radius (ft):	60
Roundabout Lanes (#):	1
Circle Speed (mph):	18
Inside Color:	
Transparent Circle:	☐

HCM 6th ROUNDABOUT	EB			NB			SB		
Entry Lanes	1			1			1		
Conflicting Circle Lanes	1			1			1		
Exit Lanes	1			1			1		
Adjusted Approach Flow (vph)	91			195			144		
Demand Flow Rate (pc/h)	92			199			147		
Vehicles Circulating (pc/h)	60			69			47		
Vehicles Exiting (pc/h)	47			60			221		
Ped Vol. Crossing Leg (#/hr)	0			0			0		
Ped Capacity Adjustment	1.000			1.000			1.000		
Approach Delay (sec/veh)	2.4			4.2			1.3		
Approach LOS	A			A			A		
Lane	Left	—	Bypass	Left	—	—	Left	—	Bypass
Follow-Up Headway (s)	2.609	—	—	2.609	—	—	2.609	—	—
Critical Headway (s)	4.976	—	—	4.976	—	—	4.976	—	—
Designated Moves	L	—	R	LT	—	—	T	—	R
Assumed Moves	L	—	—	LT	—	—	T	—	—
Right Turn Channelized	—	—	Free	—	—	Free	—	—	Free
Lane Utilization	1.000	—	—	1.000	—	—	1.000	—	—
Entry Flow Rate (pc/h)	69	—	23	199	—	—	60	—	87
Capacity, Entry Lane (pc/h)	1298	—	1938	1286	—	—	1315	—	1938
Entry HV Adjustment Factor	0.986	—	0.980	0.980	—	—	0.980	—	0.980
Flow Rate, Entry (vph)	68	—	23	195	—	—	59	—	85
Capacity, Entry (vph)	1279	—	1900	1260	—	—	1289	—	1900
Volume to Capacity Ratio	0.053	—	0.012	0.155	—	—	0.046	—	0.045
Control Delay (sec/veh)	3.2	—	0.0	4.2	—	—	3.2	—	0.0
Level of Service	A	—	A	A	—	—	A	—	A
95th-Percentile Queue (veh)	0	—	0	1	—	—	0	—	0

2025 AM No Build

2025 PM Build SimTraffic Report

5: TH 22 & Hoffman Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.2	0.2	3.1	1.4	0.3	1.5	2.9	0.2	2.7	2.4	0.4	2.3
Total Del/Veh (s)	27.5	30.4	8.7	27.1	30.3	9.3	41.6	24.8	7.2	41.3	16.1	4.6

5: TH 22 & Hoffman Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.9
Total Del/Veh (s)	21.6

10: Highway 12 & Hoffman Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.4	0.3	1.7	0.0	0.0	0.2	0.6	0.7	3.4
Total Del/Veh (s)	8.8	5.2	6.2	7.4	8.4	5.8	4.4	6.9	2.8	5.7	7.7	3.3

10: Highway 12 & Hoffman Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.5
Total Del/Veh (s)	6.0

15: Highway 12 & 211th Lane Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.1	0.1	0.3	3.9	0.6	0.0	0.2
Total Del/Veh (s)	5.7	2.4	0.6	0.3	1.8	1.1	1.0

Total Network Performance

Denied Del/Veh (s)	1.0
Total Del/Veh (s)	21.9

Intersection: 5: TH 22 & Hoffman Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	T	R	L	T
Maximum Queue (ft)	138	227	52	92	153	175	69	235	213	87	236	287
Average Queue (ft)	57	121	15	52	91	52	21	141	108	28	158	145
95th Queue (ft)	102	184	41	80	133	107	54	208	193	60	217	238
Link Distance (ft)	1142	1142			2488			1490	1490			1311
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)			230	160		160	300			300	300	
Storage Blk Time (%)		0			0	0						0
Queuing Penalty (veh)		0			0	0						0

Intersection: 5: TH 22 & Hoffman Rd

Movement	SB
Directions Served	T
Maximum Queue (ft)	244
Average Queue (ft)	117
95th Queue (ft)	203
Link Distance (ft)	1311
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 10: Highway 12 & Hoffman Rd

Movement	EB	WB	WB	NB	NB	SB
Directions Served	LT	LT	R	LT	R	LT
Maximum Queue (ft)	144	76	53	52	41	116
Average Queue (ft)	45	49	34	20	1	32
95th Queue (ft)	98	71	50	51	13	73
Link Distance (ft)	2488	1820		1128		891
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			200		200	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 15: Highway 12 & 211th Lane

Movement	WB	SB
Directions Served	LR	L
Maximum Queue (ft)	21	28
Average Queue (ft)	12	4
95th Queue (ft)	29	21
Link Distance (ft)	1382	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		300
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 0

2025 PM Build Synchro Report

HCM 6th ROUNDABOUT	
Node #	10
Zone:	
X East (ft):	3088
Y North (ft):	-1385
Z Elevation (ft):	0
Description	
Max v/c Ratio:	0.29
Intersection Delay (s):	4.5
Intersection LOS:	A
ICU:	0.60
ICU LOS:	B
Inside Radius (ft):	28
Outside Radius (ft):	60
Roundabout Lanes (#):	1
Circle Speed (mph):	18
Inside Color:	
Transparent Circle:	☐

HCM 6th ROUNDABOUT	EB			WB			NB			SB		
Entry Lanes	1			1			1			1		
Conflicting Circle Lanes	1			1			1			1		
Exit Lanes	1			1			1			1		
Adjusted Approach Flow (vph)	304			335			272			430		
Demand Flow Rate (pc/h)	310			342			278			439		
Vehicles Circulating (pc/h)	391			263			391			266		
Vehicles Exiting (pc/h)	182			307			260			229		
Ped Vol. Crossing Leg (#/hr)	0			0			0			0		
Ped Capacity Adjustment	1.000			1.000			1.000			1.000		
Approach Delay (sec/veh)	5.8			3.8			3.8			4.5		
Approach LOS	A			A			A			A		
Lane	Left	—	Bypass	Left	—	Bypass	Left	—	Bypass	Left	—	Bypass
Follow-Up Headway (s)	2.609	—	—	2.609	—	—	2.609	—	—	2.609	—	—
Critical Headway (s)	4.976	—	—	4.976	—	—	4.976	—	—	4.976	—	—
Designated Moves	LT	—	R	LT	—	R	LT	—	R	LT	—	R
Assumed Moves	LT	—	—	LT	—	—	LT	—	—	LT	—	—
Right Turn Channelized	—	—	Free	—	—	Free	—	—	Free	—	—	Free
Lane Utilization	1.000	—	—	1.000	—	—	1.000	—	—	1.000	—	—
Entry Flow Rate (pc/h)	260	—	50	232	—	110	179	—	99	307	—	132
Capacity, Entry Lane (pc/h)	926	—	1938	1055	—	1938	926	—	1938	1052	—	1938
Entry HV Adjustment Factor	0.979	—	0.980	0.979	—	0.980	0.979	—	0.980	0.979	—	0.980
Flow Rate, Entry (vph)	255	—	49	227	—	108	175	—	97	301	—	129
Capacity, Entry (vph)	907	—	1900	1033	—	1900	906	—	1900	1030	—	1900
Volume to Capacity Ratio	0.281	—	0.026	0.220	—	0.057	0.193	—	0.051	0.292	—	0.068
Control Delay (sec/veh)	6.9	—	0.0	5.6	—	0.0	5.9	—	0.0	6.4	—	0.0
Level of Service	A	—	A	A	—	A	A	—	A	A	—	A
95th-Percentile Queue (veh)	1	—	0	1	—	0	1	—	0	1	—	0

2025 PM Build

2025 PM No Build SimTraffic Report

5: TH 22 & Hoffman Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.2	0.2	3.2	2.0	0.3	2.1	3.3	0.2	2.8	2.4	0.4	2.5
Total Del/Veh (s)	29.2	35.5	9.8	30.6	36.0	7.8	41.3	19.1	6.9	41.9	11.4	4.1

5: TH 22 & Hoffman Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.9
Total Del/Veh (s)	18.6

10: Highway 12 & Hoffman Rd Performance by movement

Movement	EBL	EBT	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.1
Total Del/Veh (s)	5.3	2.4	5.2	1.8	4.6	5.0	2.4	3.5

15: Highway 12 & 211th Lane Performance by movement

Movement	NBT	SBL	SBT	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.1
Total Del/Veh (s)	0.1	0.8	0.3	0.2

Total Network Performance

Denied Del/Veh (s)	0.9
Total Del/Veh (s)	19.6

Intersection: 5: TH 22 & Hoffman Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	T	R	L	T
Maximum Queue (ft)	160	159	52	152	147	86	48	171	153	64	263	197
Average Queue (ft)	67	90	15	57	69	39	13	107	79	22	125	111
95th Queue (ft)	115	152	42	115	113	77	42	164	149	49	218	180
Link Distance (ft)	1142	1142			2490			1490	1490			1311
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)			230	160		160	300			300	300	
Storage Blk Time (%)				0	0							
Queuing Penalty (veh)				0	0							

Intersection: 5: TH 22 & Hoffman Rd

Movement	SB
Directions Served	T
Maximum Queue (ft)	173
Average Queue (ft)	85
95th Queue (ft)	153
Link Distance (ft)	1311
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 10: Highway 12 & Hoffman Rd

Movement	EB	NB	SB
Directions Served	L	LT	T
Maximum Queue (ft)	31	52	24
Average Queue (ft)	5	6	1
95th Queue (ft)	24	27	8
Link Distance (ft)	2490	1127	891
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 15: Highway 12 & 211th Lane

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Network Summary

Network wide Queuing Penalty: 0

2025 PM No Build Synchro Report

HCM 6th ROUNDABOUT	
Node #	10
Zone:	
X East (ft):	3088
Y North (ft):	-1385
Z Elevation (ft):	0
Description	
Max v/c Ratio:	0.12
Intersection Delay (s):	2.7
Intersection LOS:	A
ICU:	0.29
ICU LOS:	A
Inside Radius (ft):	28
Outside Radius (ft):	60
Roundabout Lanes (#):	1
Circle Speed (mph):	18
Inside Color:	
Transparent Circle:	☐

HCM 6th ROUNDABOUT	EB			NB			SB		
Entry Lanes	1			1			1		
Conflicting Circle Lanes	1			1			1		
Exit Lanes	1			1			1		
Adjusted Approach Flow (vph)	112			152			288		
Demand Flow Rate (pc/h)	115			155			294		
Vehicles Circulating (pc/h)	162			84			22		
Vehicles Exiting (pc/h)	22			162			217		
Ped Vol. Crossing Leg (#/hr)	0			0			0		
Ped Capacity Adjustment	1.000			1.000			1.000		
Approach Delay (sec/veh)	2.7			3.9			2.0		
Approach LOS	A			A			A		
Lane	Left	—	Bypass	Left	—	—	Left	—	Bypass
Follow-Up Headway (s)	2.609	—	—	2.609	—	—	2.609	—	—
Critical Headway (s)	4.976	—	—	4.976	—	—	4.976	—	—
Designated Moves	L	—	R	LT	—	—	T	—	R
Assumed Moves	L	—	—	LT	—	—	T	—	—
Right Turn Channelized	—	—	Free	—	—	Free	—	—	Free
Lane Utilization	1.000	—	—	1.000	—	—	1.000	—	—
Entry Flow Rate (pc/h)	84	—	31	155	—	—	162	—	132
Capacity, Entry Lane (pc/h)	1170	—	1938	1267	—	—	1349	—	1938
Entry HV Adjustment Factor	0.976	—	0.980	0.983	—	—	0.980	—	0.980
Flow Rate, Entry (vph)	82	—	30	152	—	—	159	—	129
Capacity, Entry (vph)	1142	—	1900	1245	—	—	1323	—	1900
Volume to Capacity Ratio	0.072	—	0.016	0.122	—	—	0.120	—	0.068
Control Delay (sec/veh)	3.8	—	0.0	3.9	—	—	3.7	—	0.0
Level of Service	A	—	A	A	—	—	A	—	A
95th-Percentile Queue (veh)	0	—	0	0	—	—	0	—	0

2025 PM No Build

2045 AM Build SimTraffic Report

5: TH 22 & Hoffman Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.3	0.3	3.2	1.5	1.0	1.7	2.4	0.3	2.3	2.9	0.5	2.6
Total Del/Veh (s)	71.1	37.0	7.4	58.2	50.2	17.6	39.9	46.3	23.0	84.4	29.7	5.1

5: TH 22 & Hoffman Rd Performance by movement

Movement	All
Denied Del/Veh (s)	1.2
Total Del/Veh (s)	40.9

10: Highway 12 & Hoffman Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.3	0.5	2.0	0.0	0.0	0.0	0.3	0.2	0.3
Total Del/Veh (s)	10.2	4.3	6.5	12.1	12.4	6.7	136.7	123.1	104.4	9.6	11.4	3.5

10: Highway 12 & Hoffman Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.2
Total Del/Veh (s)	41.6

15: Highway 12 & 211th Lane Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.1	0.1	0.9	2.5	1.8	0.1	0.6
Total Del/Veh (s)	55.7	50.7	63.0	27.1	8.4	1.7	39.5

Total Network Performance

Denied Del/Veh (s)	1.1
Total Del/Veh (s)	65.4

Intersection: 5: TH 22 & Hoffman Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	T	R	L	T
Maximum Queue (ft)	246	417	255	325	900	325	89	341	315	191	325	484
Average Queue (ft)	157	250	28	164	429	180	41	249	218	108	253	201
95th Queue (ft)	233	387	129	345	786	383	75	340	314	175	359	433
Link Distance (ft)	1142	1142			2488			1490	1490			1323
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)			230	300		300	300			300	300	
Storage Blk Time (%)		13	0	0	13	0		2	0		14	
Queuing Penalty (veh)		2	0	0	65	2		1	0		32	

Intersection: 5: TH 22 & Hoffman Rd

Movement	SB
Directions Served	T
Maximum Queue (ft)	481
Average Queue (ft)	142
95th Queue (ft)	334
Link Distance (ft)	1323
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 10: Highway 12 & Hoffman Rd

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	LT	R	LT	R	LT	R	LT	R
Maximum Queue (ft)	117	42	138	52	1132	225	152	41
Average Queue (ft)	39	5	64	35	812	172	59	8
95th Queue (ft)	77	27	108	52	1456	329	113	34
Link Distance (ft)	2488		1670		1128		891	891
Upstream Blk Time (%)					4			
Queuing Penalty (veh)					36			
Storage Bay Dist (ft)		200		200		200		
Storage Blk Time (%)					77	0		
Queuing Penalty (veh)					52	1		

Intersection: 15: Highway 12 & 211th Lane

Movement	WB	NB	NB	SB
Directions Served	LR	T	R	L
Maximum Queue (ft)	108	1165	325	53
Average Queue (ft)	29	431	32	14
95th Queue (ft)	73	1186	193	40
Link Distance (ft)	1382	1240		
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			300	300
Storage Blk Time (%)		45		
Queuing Penalty (veh)		4		

Network Summary

Network wide Queuing Penalty: 197

2045 AM Build Synchro Report

HCM 6th ROUNDABOUT	
Node #	10
Zone:	
X East (ft):	3088
Y North (ft):	-1385
Z Elevation (ft):	0
Description	
Max v/c Ratio:	0.71
Intersection Delay (s):	9.1
Intersection LOS:	A
ICU:	0.86
ICU LOS:	E
Inside Radius (ft):	28
Outside Radius (ft):	60
Roundabout Lanes (#):	1
Circle Speed (mph):	18
Inside Color:	
Transparent Circle:	☐

HCM 6th ROUNDABOUT	EB			WB			NB			SB		
Entry Lanes	1			1			1			1		
Conflicting Circle Lanes	1			1			1			1		
Exit Lanes	1			1			1			1		
Adjusted Approach Flow (vph)	255			398			768			597		
Demand Flow Rate (pc/h)	260			406			783			609		
Vehicles Circulating (pc/h)	407			807			307			449		
Vehicles Exiting (pc/h)	350			215			316			633		
Ped Vol. Crossing Leg (#/hr)	0			0			0			0		
Ped Capacity Adjustment	1.000			1.000			1.000			1.000		
Approach Delay (sec/veh)	5.4			9.0			14.1			4.2		
Approach LOS	A			A			B			A		
Lane	Left	—	Bypass	Left	—	Bypass	Left	—	Bypass	Left	—	Bypass
Follow-Up Headway (s)	2.609	—	—	2.609	—	—	2.609	—	—	2.609	—	—
Critical Headway (s)	4.976	—	—	4.976	—	—	4.976	—	—	4.976	—	—
Designated Moves	LT	—	R	LT	—	R	LT	—	R	LT	—	R
Assumed Moves	LT	—	—	LT	—	—	LT	—	—	LT	—	—
Right Turn Channelized	—	—	Free	—	—	Free	—	—	Free	—	—	Free
Lane Utilization	1.000	—	—	1.000	—	—	1.000	—	—	1.000	—	—
Entry Flow Rate (pc/h)	216	—	44	275	—	131	715	—	68	308	—	301
Capacity, Entry Lane (pc/h)	911	—	1938	606	—	1938	1009	—	1938	873	—	1938
Entry HV Adjustment Factor	0.979	—	0.980	0.980	—	0.980	0.981	—	0.980	0.980	—	0.980
Flow Rate, Entry (vph)	212	—	43	270	—	128	701	—	67	302	—	295
Capacity, Entry (vph)	892	—	1900	594	—	1900	990	—	1900	855	—	1900
Volume to Capacity Ratio	0.237	—	0.023	0.454	—	0.067	0.709	—	0.035	0.353	—	0.155
Control Delay (sec/veh)	6.5	—	0.0	13.3	—	0.0	15.5	—	0.0	8.3	—	0.0
Level of Service	A	—	A	B	—	A	C	—	A	A	—	A
95th-Percentile Queue (veh)	1	—	0	2	—	0	6	—	0	2	—	1

2045 AM Build

2045 AM Build Synchro Report
Highway 12 and 211th Lane

15: Highway 12 & 211th Lane Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.1	0.1	1.0	1.9	3.3	0.5	0.8
Total Del/Veh (s)	44.3	19.0	2.7	0.5	11.6	0.4	3.1

Queuing and Blocking Report
Baseline

Intersection: 15: Highway 12 & 211th Lane

Movement	WB	SB
Directions Served	LR	L
Maximum Queue (ft)	105	53
Average Queue (ft)	28	16
95th Queue (ft)	70	44
Link Distance (ft)	1382	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		300
Storage Blk Time (%)		
Queuing Penalty (veh)		

2045 Build at 211th Ln (without RaB impact) – SimTraffic does not model RaB correctly

2045 AM Build SimTraffic Report with Mitigation Strategies

5: TH 22 & Hoffman Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.3	0.3	3.5	1.7	0.8	1.7	2.3	0.3	2.3	2.8	0.4	2.7
Total Del/Veh (s)	44.7	41.0	13.3	53.2	43.9	41.3	42.3	48.3	24.8	42.6	20.4	4.7

5: TH 22 & Hoffman Rd Performance by movement

Movement	All
Denied Del/Veh (s)	1.2
Total Del/Veh (s)	37.2

10: Highway 12 & Hoffman Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.4	0.5	2.0	0.0	0.0	0.0	0.2	0.3	0.3
Total Del/Veh (s)	10.7	4.4	5.7	15.1	13.2	6.6	110.9	86.4	85.2	7.3	10.1	3.7

10: Highway 12 & Hoffman Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.2
Total Del/Veh (s)	32.9

15: Highway 12 & 211th Lane Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.1	0.1	0.8	2.6	1.8	0.2	0.6
Total Del/Veh (s)	61.6	35.6	3.2	1.6	17.5	1.7	4.8

Total Network Performance

Denied Del/Veh (s)	1.1
Total Del/Veh (s)	47.9

Intersection: 5: TH 22 & Hoffman Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	T	TR	L	T	T	R	L	T
Maximum Queue (ft)	270	374	255	256	405	447	324	414	416	325	260	237
Average Queue (ft)	125	242	32	113	254	304	62	251	222	109	162	100
95th Queue (ft)	211	380	157	194	376	418	157	360	338	221	260	172
Link Distance (ft)	1142	1142			2488			1490	1490			1311
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)			230	300		980	300			300	300	
Storage Blk Time (%)		15	0		3			4	1	0		
Queuing Penalty (veh)		3	0		23			2	3	0		

Intersection: 5: TH 22 & Hoffman Rd

Movement	SB
Directions Served	T
Maximum Queue (ft)	162
Average Queue (ft)	89
95th Queue (ft)	151
Link Distance (ft)	1311
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 10: Highway 12 & Hoffman Rd

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	LT	R	LT	R	LT	R	LT	R
Maximum Queue (ft)	133	35	186	88	1097	225	135	60
Average Queue (ft)	51	3	67	36	664	165	49	10
95th Queue (ft)	103	18	120	60	1163	329	93	39
Link Distance (ft)	2488		1670		1128		891	891
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)		200		200		200		
Storage Blk Time (%)			0		85	0		
Queuing Penalty (veh)			0		58	1		

Intersection: 15: Highway 12 & 211th Lane

Movement	WB	NB	SB
Directions Served	LR	T	L
Maximum Queue (ft)	168	71	73
Average Queue (ft)	43	4	25
95th Queue (ft)	115	29	60
Link Distance (ft)	1382	1240	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			300
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 90

2045 AM Build Synchro Report
with Mitigation Strategies

HCM 6th ROUNDABOUT	
Node #	10
Zone:	
X East (ft):	3088
Y North (ft):	-1385
Z Elevation (ft):	0
Description	
Max v/c Ratio:	0.71
Intersection Delay (s):	9.1
Intersection LOS:	A
ICU:	0.86
ICU LOS:	E
Inside Radius (ft):	28
Outside Radius (ft):	60
Roundabout Lanes (#):	1
Circle Speed (mph):	18
Inside Color:	
Transparent Circle:	☐

HCM 6th ROUNDABOUT	EB			WB			NB			SB		
Entry Lanes	1			1			1			1		
Conflicting Circle Lanes	1			1			1			1		
Exit Lanes	1			1			1			1		
Adjusted Approach Flow (vph)	255			398			768			597		
Demand Flow Rate (pc/h)	260			406			783			609		
Vehicles Circulating (pc/h)	407			807			307			449		
Vehicles Exiting (pc/h)	350			215			316			633		
Ped Vol. Crossing Leg (#/hr)	0			0			0			0		
Ped Capacity Adjustment	1.000			1.000			1.000			1.000		
Approach Delay (sec/veh)	5.4			9.0			14.1			4.2		
Approach LOS	A			A			B			A		
Lane	Left	—	Bypass	Left	—	Bypass	Left	—	Bypass	Left	—	Bypass
Follow-Up Headway (s)	2.609	—	—	2.609	—	—	2.609	—	—	2.609	—	—
Critical Headway (s)	4.976	—	—	4.976	—	—	4.976	—	—	4.976	—	—
Designated Moves	LT	—	R	LT	—	R	LT	—	R	LT	—	R
Assumed Moves	LT	—	—	LT	—	—	LT	—	—	LT	—	—
Right Turn Channelized	—	—	Free	—	—	Free	—	—	Free	—	—	Free
Lane Utilization	1.000	—	—	1.000	—	—	1.000	—	—	1.000	—	—
Entry Flow Rate (pc/h)	216	—	44	275	—	131	715	—	68	308	—	301
Capacity, Entry Lane (pc/h)	911	—	1938	606	—	1938	1009	—	1938	873	—	1938
Entry HV Adjustment Factor	0.979	—	0.980	0.980	—	0.980	0.981	—	0.980	0.980	—	0.980
Flow Rate, Entry (vph)	212	—	43	270	—	128	701	—	67	302	—	295
Capacity, Entry (vph)	892	—	1900	594	—	1900	990	—	1900	855	—	1900
Volume to Capacity Ratio	0.237	—	0.023	0.454	—	0.067	0.709	—	0.035	0.353	—	0.155
Control Delay (sec/veh)	6.5	—	0.0	13.3	—	0.0	15.5	—	0.0	8.3	—	0.0
Level of Service	A	—	A	B	—	A	C	—	A	A	—	A
95th-Percentile Queue (veh)	1	—	0	2	—	0	6	—	0	2	—	1

2045 AM Build w/mitigation

2045 AM No Build SimTraffic Report

5: TH 22 & Hoffman Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.3	0.3	2.8	1.4	0.7	1.6	2.4	0.3	2.4	2.8	0.4	2.7
Total Del/Veh (s)	32.5	28.9	6.1	38.3	50.9	25.7	48.6	33.6	15.1	47.4	20.1	4.2

5: TH 22 & Hoffman Rd Performance by movement

Movement	All
Denied Del/Veh (s)	1.1
Total Del/Veh (s)	30.4

10: Highway 12 & Hoffman Rd Performance by movement

Movement	EBL	EBT	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.0
Total Del/Veh (s)	6.8	3.0	4.8	6.0	7.7	6.7	3.4	5.1

15: Highway 12 & 211th Lane Performance by movement

Movement	WBR	NBT	SBL	SBT	All
Denied Del/Veh (s)	0.1	0.6	3.0	0.1	0.5
Total Del/Veh (s)	7.2	1.1	1.7	0.6	1.0

Total Network Performance

Denied Del/Veh (s)	1.0
Total Del/Veh (s)	28.4

Intersection: 5: TH 22 & Hoffman Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	T	R	L	T
Maximum Queue (ft)	161	294	31	255	942	255	114	295	298	166	282	171
Average Queue (ft)	101	158	10	103	316	147	43	179	163	73	147	76
95th Queue (ft)	149	244	32	233	670	302	88	254	243	135	219	130
Link Distance (ft)	1142	1142			2490			1490	1490			1311
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)			230	230		230	300			300	300	
Storage Blk Time (%)		1			18	1		0	0		0	
Queuing Penalty (veh)		0			74	4		0	0		0	

Intersection: 5: TH 22 & Hoffman Rd

Movement	SB
Directions Served	T
Maximum Queue (ft)	138
Average Queue (ft)	61
95th Queue (ft)	109
Link Distance (ft)	1311
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 10: Highway 12 & Hoffman Rd

Movement	EB	NB	SB	SB
Directions Served	L	LT	T	R
Maximum Queue (ft)	56	95	68	40
Average Queue (ft)	17	30	20	3
95th Queue (ft)	51	74	52	18
Link Distance (ft)	2490	1127	891	891
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 15: Highway 12 & 211th Lane

Movement	WB	SB
Directions Served	LR	L
Maximum Queue (ft)	21	26
Average Queue (ft)	5	2
95th Queue (ft)	19	12
Link Distance (ft)	1382	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		300
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 78

2045 AM No Build Synchro Report

HCM 6th ROUNDABOUT	
Node #	10
Zone:	
X East (ft):	3088
Y North (ft):	-1385
Z Elevation (ft):	0
Description	
Max v/c Ratio:	0.55
Intersection Delay (s):	5.8
Intersection LOS:	A
ICU:	0.58
ICU LOS:	B
Inside Radius (ft):	28
Outside Radius (ft):	60
Roundabout Lanes (#):	1
Circle Speed (mph):	18
Inside Color:	
Transparent Circle:	☐

HCM 6th ROUNDABOUT	EB			NB			SB		
Entry Lanes	1			1			1		
Conflicting Circle Lanes	1			1			1		
Exit Lanes	1			1			1		
Adjusted Approach Flow (vph)	120			675			498		
Demand Flow Rate (pc/h)	123			688			508		
Vehicles Circulating (pc/h)	207			92			162		
Vehicles Exiting (pc/h)	162			207			618		
Ped Vol. Crossing Leg (#/hr)	0			0			0		
Ped Capacity Adjustment	1.000			1.000			1.000		
Approach Delay (sec/veh)	3.0			9.1			1.9		
Approach LOS	A			A			A		
Lane	Left	—	Bypass	Left	—	—	Left	—	Bypass
Follow-Up Headway (s)	2.609	—	—	2.609	—	—	2.609	—	—
Critical Headway (s)	4.976	—	—	4.976	—	—	4.976	—	—
Designated Moves	L	—	R	LT	—	—	T	—	R
Assumed Moves	L	—	—	LT	—	—	T	—	—
Right Turn Channelized	—	—	Free	—	—	Free	—	—	Free
Lane Utilization	1.000	—	—	1.000	—	—	1.000	—	—
Entry Flow Rate (pc/h)	92	—	31	688	—	—	207	—	301
Capacity, Entry Lane (pc/h)	1117	—	1938	1256	—	—	1170	—	1938
Entry HV Adjustment Factor	0.978	—	0.980	0.981	—	—	0.980	—	0.980
Flow Rate, Entry (vph)	90	—	30	675	—	—	203	—	295
Capacity, Entry (vph)	1093	—	1900	1232	—	—	1147	—	1900
Volume to Capacity Ratio	0.082	—	0.016	0.548	—	—	0.177	—	0.155
Control Delay (sec/veh)	4.0	—	0.0	9.1	—	—	4.7	—	0.0
Level of Service	A	—	A	A	—	—	A	—	A
95th-Percentile Queue (veh)	0	—	0	3	—	—	1	—	1

2045 AM No Build

2045 PM No Build SimTraffic Report

5: TH 22 & Hoffman Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.2	0.2	2.8	0.0	0.0	0.1	3.0	0.2	2.6	2.3	0.6	2.0
Total Del/Veh (s)	27.7	34.9	11.2	34.0	37.3	10.5	47.8	26.4	9.6	41.8	17.8	6.0

5: TH 22 & Hoffman Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.7
Total Del/Veh (s)	23.2

10: Highway 12 & Hoffman Rd Performance by movement

Movement	EBL	EBT	EBR	NBL	NBT	SBT	SBR	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.4	0.3	0.2
Total Del/Veh (s)	8.2	2.6	5.7	4.9	8.0	10.1	4.5	6.5

15: Highway 12 & 211th Lane Performance by movement

Movement	WBR	NBT	SBL	SBT	All
Denied Del/Veh (s)	0.1	0.3	1.3	0.2	0.2
Total Del/Veh (s)	4.4	0.5	3.5	1.2	1.0

Total Network Performance

Denied Del/Veh (s)	0.7
Total Del/Veh (s)	22.5

Intersection: 5: TH 22 & Hoffman Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	T	R	L	T
Maximum Queue (ft)	128	198	78	136	213	103	70	270	246	64	324	339
Average Queue (ft)	75	115	19	77	99	48	23	155	138	29	154	181
95th Queue (ft)	123	185	53	131	172	88	52	228	217	61	241	295
Link Distance (ft)	1142	1142			2490			1490	1490			1311
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)			230	230		230	300			300	300	
Storage Blk Time (%)					0							0
Queuing Penalty (veh)					0							1

Intersection: 5: TH 22 & Hoffman Rd

Movement	SB
Directions Served	T
Maximum Queue (ft)	301
Average Queue (ft)	166
95th Queue (ft)	261
Link Distance (ft)	1311
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	0
Queuing Penalty (veh)	0

Intersection: 10: Highway 12 & Hoffman Rd

Movement	EB	EB	NB	SB	SB
Directions Served	L	R	LT	T	R
Maximum Queue (ft)	55	47	66	185	40
Average Queue (ft)	30	5	23	44	3
95th Queue (ft)	62	28	58	121	20
Link Distance (ft)	2490		1127	891	891
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		200			
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 15: Highway 12 & 211th Lane

Movement	WB	SB
Directions Served	LR	L
Maximum Queue (ft)	20	28
Average Queue (ft)	1	9
95th Queue (ft)	7	30
Link Distance (ft)	1382	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		300
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 1

2045 PM No Build Synchro Report

HCM 6th ROUNDABOUT	
Node #	10
Zone:	
X East (ft):	3088
Y North (ft):	-1385
Z Elevation (ft):	0
Description	
Max v/c Ratio:	0.44
Intersection Delay (s):	5.2
Intersection LOS:	A
ICU:	0.68
ICU LOS:	C
Inside Radius (ft):	28
Outside Radius (ft):	60
Roundabout Lanes (#):	1
Circle Speed (mph):	18
Inside Color:	
Transparent Circle:	☐

HCM 6th ROUNDABOUT	EB			NB			SB		
Entry Lanes	1			1			1		
Conflicting Circle Lanes	1			1			1		
Exit Lanes	1			1			1		
Adjusted Approach Flow (vph)	148			530			996		
Demand Flow Rate (pc/h)	151			541			1016		
Vehicles Circulating (pc/h)	559			110			79		
Vehicles Exiting (pc/h)	79			559			572		
Ped Vol. Crossing Leg (#/hr)	0			0			0		
Ped Capacity Adjustment	1.000			1.000			1.000		
Approach Delay (sec/veh)	4.5			7.5			4.0		
Approach LOS	A			A			A		
Lane	Left	—	Bypass	Left	—	—	Left	—	Bypass
Follow-Up Headway (s)	2.609	—	—	2.609	—	—	2.609	—	—
Critical Headway (s)	4.976	—	—	4.976	—	—	4.976	—	—
Designated Moves	L	—	R	LT	—	—	T	—	R
Assumed Moves	L	—	—	LT	—	—	T	—	—
Right Turn Channelized	—	—	Free	—	—	Free	—	—	Free
Lane Utilization	1.000	—	—	1.000	—	—	1.000	—	—
Entry Flow Rate (pc/h)	110	—	41	541	—	—	559	—	457
Capacity, Entry Lane (pc/h)	780	—	1938	1233	—	—	1273	—	1938
Entry HV Adjustment Factor	0.982	—	0.980	0.980	—	—	0.980	—	0.980
Flow Rate, Entry (vph)	108	—	40	530	—	—	548	—	448
Capacity, Entry (vph)	766	—	1900	1208	—	—	1248	—	1900
Volume to Capacity Ratio	0.141	—	0.021	0.439	—	—	0.439	—	0.236
Control Delay (sec/veh)	6.2	—	0.0	7.5	—	—	7.3	—	0.0
Level of Service	A	—	A	A	—	—	A	—	A
95th-Percentile Queue (veh)	0	—	0	2	—	—	2	—	1

2045 PM No Build

2045 PM Build SimTraffic Report

5: TH 22 & Hoffman Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.3	0.2	3.0	0.0	0.0	0.0	2.1	0.2	2.4	2.4	0.7	2.2
Total Del/Veh (s)	29.8	42.3	12.5	39.6	38.4	22.7	42.0	34.4	13.9	43.2	24.2	7.6

5: TH 22 & Hoffman Rd Performance by movement

Movement	All
Denied Del/Veh (s)	0.8
Total Del/Veh (s)	29.5

10: Highway 12 & Hoffman Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.2	0.3	2.3	0.8	1.5	0.4	82.9	95.4	98.2
Total Del/Veh (s)	23.4	8.6	7.0	15.7	17.2	6.0	96.1	95.7	51.4	181.3	187.6	21.9

10: Highway 12 & Hoffman Rd Performance by movement

Movement	All
Denied Del/Veh (s)	37.0
Total Del/Veh (s)	70.8

15: Highway 12 & 211th Lane Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.1	0.1	0.5	3.0	1.1	0.2	0.4
Total Del/Veh (s)	15.9	4.4	1.1	0.1	5.5	2.9	2.4

Total Network Performance

Denied Del/Veh (s)	19.7
Total Del/Veh (s)	59.6

Intersection: 5: TH 22 & Hoffman Rd

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	T	TR	L	T	T	R	L	T
Maximum Queue (ft)	157	333	250	154	242	324	67	303	291	104	325	436
Average Queue (ft)	76	199	34	79	99	157	21	202	180	45	205	238
95th Queue (ft)	128	309	132	137	191	264	54	281	265	89	318	352
Link Distance (ft)	1142	1142			2488			1490	1490			1311
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)			230	250		980	300			300	300	
Storage Blk Time (%)		8	0		0			0	0		0	3
Queuing Penalty (veh)		2	0		0			0	0		3	8

Intersection: 5: TH 22 & Hoffman Rd

Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	448	325
Average Queue (ft)	243	32
95th Queue (ft)	368	193
Link Distance (ft)	1311	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		300
Storage Blk Time (%)	4	0
Queuing Penalty (veh)	9	0

Intersection: 10: Highway 12 & Hoffman Rd

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	LT	R	LT	R	LT	R	LT	R
Maximum Queue (ft)	202	44	174	75	757	225	930	930
Average Queue (ft)	89	10	78	32	505	202	858	620
95th Queue (ft)	177	39	137	56	732	313	1024	1279
Link Distance (ft)	2488		1485		1128		891	891
Upstream Blk Time (%)							61	46
Queuing Penalty (veh)							0	0
Storage Bay Dist (ft)		200		200		200		
Storage Blk Time (%)	0				89	0		
Queuing Penalty (veh)	0				81	1		

Intersection: 15: Highway 12 & 211th Lane

Movement	WB	SB
Directions Served	LR	L
Maximum Queue (ft)	22	52
Average Queue (ft)	15	15
95th Queue (ft)	29	41
Link Distance (ft)	1382	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		300
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 106

2045 PM Build Synchro Report

HCM 6th ROUNDABOUT	
Node #	10
Zone:	
X East (ft):	3088
Y North (ft):	-1385
Z Elevation (ft):	0
Description	
Max v/c Ratio:	0.71
Intersection Delay (s):	9.9
Intersection LOS:	A
ICU:	0.99
ICU LOS:	F
Inside Radius (ft):	28
Outside Radius (ft):	60
Roundabout Lanes (#):	1
Circle Speed (mph):	18
Inside Color:	
Transparent Circle:	☐

HCM 6th ROUNDABOUT	EB			WB			NB			SB		
Entry Lanes	1			1			1			1		
Conflicting Circle Lanes	1			1			1			1		
Exit Lanes	1			1			1			1		
Adjusted Approach Flow (vph)	340			335			650			1138		
Demand Flow Rate (pc/h)	346			342			663			1161		
Vehicles Circulating (pc/h)	788			674			417			322		
Vehicles Exiting (pc/h)	238			307			657			584		
Ped Vol. Crossing Leg (#/hr)	0			0			0			0		
Ped Capacity Adjustment	1.000			1.000			1.000			1.000		
Approach Delay (sec/veh)	11.0			6.5			11.7			9.5		
Approach LOS	B			A			B			A		
Lane	Left	—	Bypass	Left	—	Bypass	Left	—	Bypass	Left	—	Bypass
Follow-Up Headway (s)	2.609	—	—	2.609	—	—	2.609	—	—	2.609	—	—
Critical Headway (s)	4.976	—	—	4.976	—	—	4.976	—	—	4.976	—	—
Designated Moves	LT	—	R	LT	—	R	LT	—	R	LT	—	R
Assumed Moves	LT	—	—	LT	—	—	LT	—	—	LT	—	—
Right Turn Channelized	—	—	Free	—	—	Free	—	—	Free	—	—	Free
Lane Utilization	1.000	—	—	1.000	—	—	1.000	—	—	1.000	—	—
Entry Flow Rate (pc/h)	286	—	60	232	—	110	564	—	99	704	—	457
Capacity, Entry Lane (pc/h)	618	—	1938	694	—	1938	902	—	1938	994	—	1938
Entry HV Adjustment Factor	0.981	—	0.980	0.979	—	0.980	0.980	—	0.980	0.980	—	0.980
Flow Rate, Entry (vph)	281	—	59	227	—	108	553	—	97	690	—	448
Capacity, Entry (vph)	606	—	1900	679	—	1900	884	—	1900	974	—	1900
Volume to Capacity Ratio	0.463	—	0.031	0.334	—	0.057	0.625	—	0.051	0.709	—	0.236
Control Delay (sec/veh)	13.3	—	0.0	9.6	—	0.0	13.7	—	0.0	15.7	—	0.0
Level of Service	B	—	A	A	—	A	B	—	A	C	—	A
95th-Percentile Queue (veh)	2	—	0	1	—	0	5	—	0	6	—	1

2045 PM Build

Wetland Delineation Report and Minnesota Wetland Conservation Act Notice of Decision

BOARD OF WATER AND SOIL RESOURCES

Minnesota Wetland Conservation Act
Notice of Decision

Local Government Unit: Blue Earth County	**County:** Blue Earth
Applicant Name: Mesenbrink Development	**Applicant Representative:** Wayne Jacobson – Jacobson Environmental
Project Name: Mesenbrink Wetland Delineation #2	**LGU Project No. (if any):** PL2021195
Date Application Received by LGU: 12/29/21	
Date of LGU Decision: 2/22/2022	
Date this Notice was Sent: 2/22/22	

WCA Decision Type - check all that apply

☒Wetland Boundary/Type ☐Sequencing ☐Replacement Plan ☐Bank Plan (not credit purchase)
☐No-Loss (8420.0415) ☐Exemption (8420.0420)
Part: ☐ A ☐ B ☐ C ☐ D ☐ E ☐ F ☐ G ☐ H Subpart: ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9

Replacement Plan Impacts (replacement plan decisions only)

Total WCA Wetland Impact Area:
Wetland Replacement Type: ☐ Project Specific Credits: ☐ Bank Credits:
Bank Account Number(s):

Technical Evaluation Panel Findings and Recommendations (attach if any)

☒ Approve ☐ Approve w/Conditions ☐ Deny ☐ No TEP Recommendation

LGU Decision

☐ Approved with Conditions (specify below)[1] ☒ Approved[1] ☐ Denied
List Conditions:

Decision-Maker for this Application: ☒ Staff ☐ Governing Board/Council ☐ Other:

Decision is valid for: ☒ 5 years (default) ☐ Other (specify):

[1] *Wetland Replacement Plan approval is not valid until BWSR confirms the withdrawal of any required wetland bank credits. For project-specific replacement a financial assurance per MN Rule 8420.0522, Subp. 9 and evidence that all required forms have been recorded on the title of the property on which the replacement wetland is located must be provided to the LGU for the approval to be valid.*

LGU Findings – Attach document(s) and/or insert narrative providing the basis for the LGU decision[1].

☐ Attachment(s) (specify):
☒ Summary: Ashley Mack of Jacobson Environmental submitted a wetland delineation on behalf of Mesenbrink Development. The submitted delineation identifies 12 wetland basins. This property was previously delineated in 2021 by Paul Brandt of Soil Investigations and Design. The previous wetland delineation Boundary/Type application was denied for not identifying all of the wetlands on the site. According to MN 8420.0310 Blue Earth County reviewed the submitted report with the TEP at regularly scheduled TEP meetings and found the report to be mostly accurate. On January 25th, 2022 revision to some of the basins were requested. On January 26th revisions to the requested basins were submitted in an amended report. The amended report was again reviewed and found that it needed to be amended again to fix an error. On January 31st, 2022 a final copy of the report was submitted and reviewed by the TEP. The TEP is in concurrence that 12 wetlands exist on the site and that the boundaries appear accurate.

For more information regarding this application go to:
https://cityview.blueearthcountymn.gov/CityViewPortal/Planning/Status?planningId=14720

[1] *Findings must consider any TEP recommendations.*

Attached Project Documents

☒ Site Location Map ☒ Project Plan(s)/Descriptions/Reports (specify): Delineation Boundary Map

Appeals of LGU Decisions

If you wish to appeal this decision, you must provide a written request within 30 calendar days of the date you received the notice. All appeals must be submitted to the Board of Water and Soil Resources Executive Director along with a check payable to BWSR for $500 *unless* the LGU has adopted a local appeal process as identified below. The check must be sent by mail and the written request to appeal can be submitted by mail or e-mail. The appeal should include a copy of this notice, name and contact information of appellant(s) and their representatives (if applicable), a statement clarifying the intent to appeal and supporting information as to why the decision is in error. Send to:

Appeals & Regulatory Compliance Coordinator
Minnesota Board of Water & Soils Resources
520 Lafayette Road North
St. Paul, MN 55155
travis.germundson@state.mn.us

Does the LGU have a local appeal process applicable to this decision?

☒ Yes[1] ☐ No

[1]*If yes, all appeals must first be considered via the local appeals process.*

Local Appeals Submittal Requirements (LGU must describe how to appeal, submittal requirements, fees, etc. as applicable)

Appeal of an LGU staff decision. Send petition and $500.00 fee to:
Blue Earth County Property and Environmental Resources
PO BOX 3566
Mankato, MN 56002

Notice Distribution (include name)

Required on all notices:

☒ SWCD TEP Member: Jake Fritz	☒ BWSR TEP Member: Alyssa Core
☐ LGU TEP Member (if different than LGU contact):	
☒ DNR Representative: Dan Girolamo	
☐ Watershed District or Watershed Mgmt. Org.:	
☒ Applicant (notice only): Mesenbrink Development – John Mesenbrink ☒ Agent/Consultant (notice only): Wayne Jacobson – Jacobson Environmental	

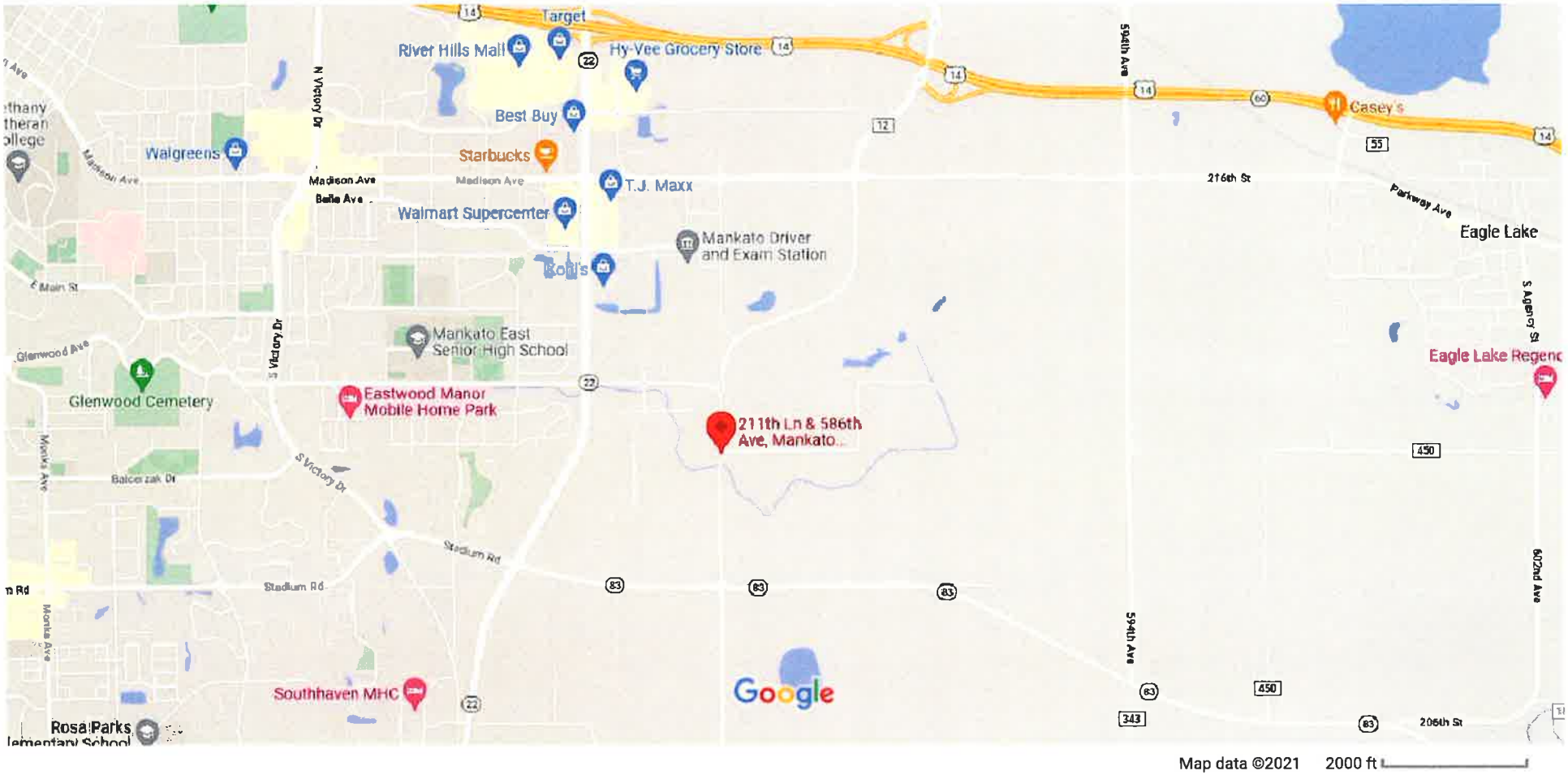
Optional or As Applicable:

☒ Corps of Engineers: David Studenski and Raelene Hegge	
☐ BWSR Wetland Mitigation Coordinator (required for bank plan applications only):	
☐ Members of the Public (notice only):	☒ Other: Chris Talamantez, Molly Westman – City of Mankato

Signature:	**Date:**
Dave Lynch	2/22/22

This notice and accompanying application materials may be sent electronically or by mail. The LGU may opt to send a summary of the application to members of the public upon request per 8420.0255, Subp. 3.

Figure 1 Site Map



Jacobson Environmental, PLLC www.jacobsonenvironmental.com
Environmental Consultants Wayne Jacobson, P.S.S., W.D.C., P.W.S., A.F.S.

5821 Humboldt Avenue North, Brooklyn Center, MN 55430 **(612) 802-6619 Cell**
Email: jacobsonenv@msn.com

1.0 SUMMARY

Jacobson Environmental, PLLC (JE) visited the project site at PIDs R430915400003 and R430915400009 on November 29, 2021. The site was approximately 106.63 acres in size, and was located at Sec. 15, T108W, R26W, Mankato, Minnesota. See Figure 1 for a Site Location Map.

The purpose of the investigation was to identify areas within the project boundary meeting the technical criteria for wetlands, delineate the jurisdictional extent of the wetland basins, and classify the wetland habitat according to the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual and the 2010 Regional Supplement to the Corps of Engineers Wetland Delineation: Midwest Region.

Wetlands are areas that are saturated or inundated with surface and or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in hydric soil conditions. Examples of wetlands include seasonally flooded basins, floodplain forests, wet meadows, shallow and deep marshes, shrub swamps, wooded swamps, fens, and bogs.

Wetland boundaries were determined through both a level one off-site hydrology analysis and a level two on site delineation.

Twelve basins were delineated within the project area, which are summarized below and shown on Figure 5.

Basin ID	Circular 39	Cowardin	Eggers & Reed	Dominant Vegetation	Size (acres)
1	Type 1/3/5/7	PEM1A/C/P UBH/PFO1 A	Seasonally flooded basin/shallow marsh/hardwood swamp/shallow open water community	Reed Canary Grass, Narrowleaf Cattail, Box Elder	21.50
2	Type 1	PEM2Af	Farmed seasonally flooded basin	-	0.069
3	Type 1	PEM2Af	Farmed seasonally flooded basin	-	1.63
4	Type 1	PEM2Af	Farmed seasonally flooded basin	-	0.327

5821 Humboldt Avenue North, Brooklyn Center, MN 55430 **(612) 802-6619 Cell**
Email: jacobsonenv@msn.com

5	Type 1	PEM2Af	Farmed seasonally flooded basin	-	0.267
6	Type 1	PEM2Af	Farmed seasonally flooded basin	-	0.620
7	Type 1	PEM2Af	Farmed seasonally flooded basin	-	0.325
8	Type 1	PEM2Af	Farmed seasonally flooded basin	-	0.148
9	Type 1	PEM2Af	Farmed seasonally flooded basin	-	1.71
10	Type 1	PEM2Af	Farmed seasonally flooded basin	-	1.30
12	Type 1	PEM2Af	Farmed seasonally flooded basin	-	0.119
15	Type 1	PEM2Af	Farmed seasonally flooded basin	-	0.575

All figures and appendices referenced by this report are presented at the end of the text.

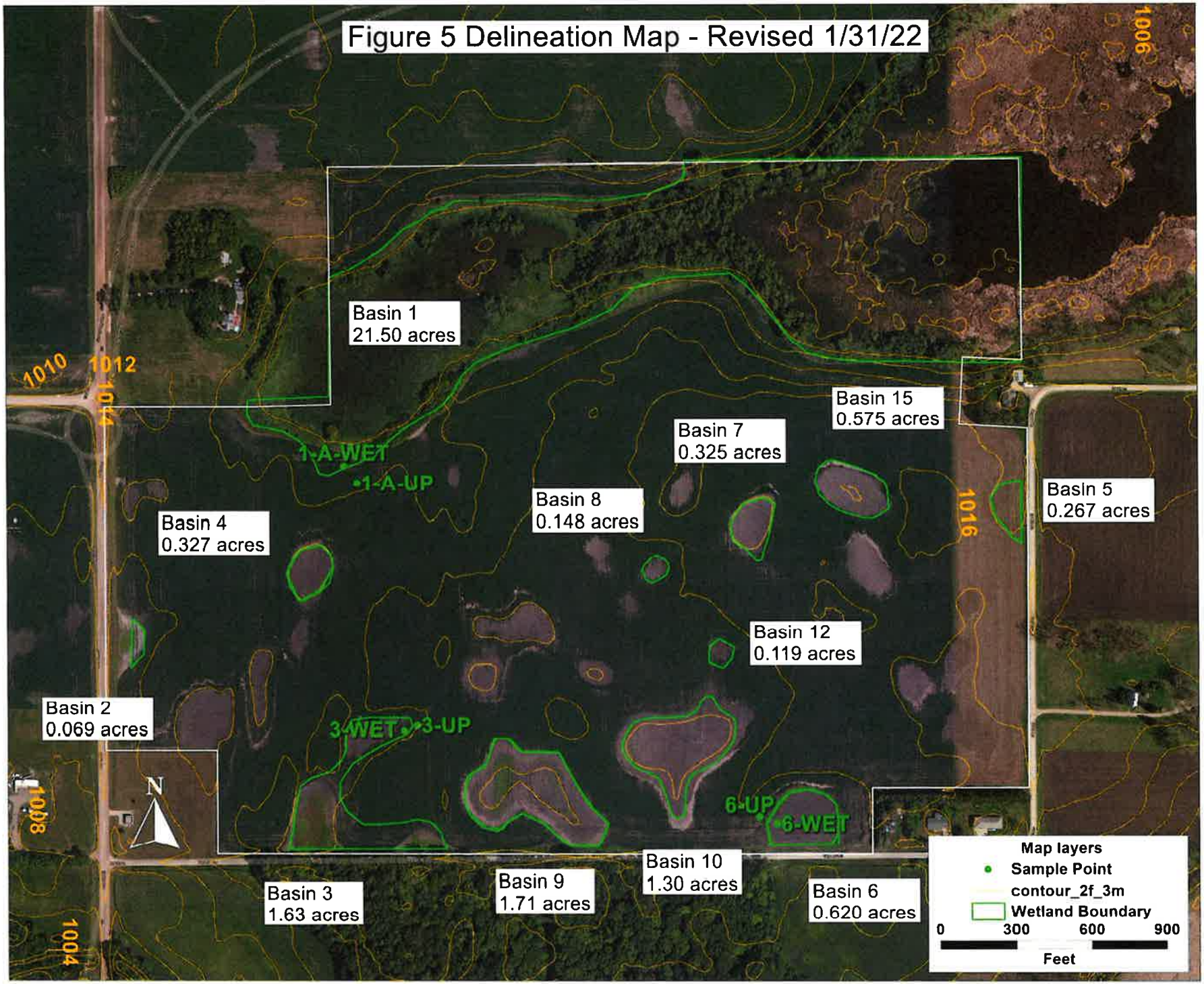


Figure 5 Delineation Map - Revised 1/31/22
1006
Basin 1
21.50 acres
1010
1012
1014
1-A-WET
1-A-UP
Basin 15
0.575 acres
Basin 7
0.325 acres
Basin 8
0.148 acres
Basin 4
0.327 acres
1016
Basin 5
0.267 acres
Basin 12
0.119 acres
Basin 2
0.069 acres
3-WET
3-UP
6-UP
6-WET
1008
N
Basin 10
1.30 acres
Basin 3
1.63 acres
Basin 9
1.71 acres
Basin 6
0.620 acres
1004
Map layers
Sample Point
contour_2f_3m
Wetland Boundary
0
300
600
900
Feet

Well Logs

Minnesota Unique Well Number

154684

County Blue Earth
Quad Mankato
Quad ID 55B

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date 06/17/1997
Update Date 02/12/2003
Received Date

Well Name	Township	Range	Dir	Section	Subsection
WILMES, PAUL	108	26	W	14	CBDDAC

Elevation 1007 **Elev. Method** 7.5 minute topographic map (+/- 5 feet)

Address

Contact 14 HY E MANKATO

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
CLAY	0	93		
SAND AND GRAVEL	93	108		
CLAY	108	215		
SANDSTONE	215	247		

Remarks

Well Depth 247 ft. **Depth Completed** 247 ft. **Date Well Completed** 06/29/1979

Drill Method Non-specified Rotary **Drill Fluid**

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☐ **From** **To**

Casing Type Single casing **Joint** Threaded

Drive Shoe? Yes ☐ No ☐ **Above/Below** 0 ft.

Casing Diameter **Weight**

5 in. To 218 ft. lbs./ft.

Open Hole From 218 ft. To 247 ft.

Screen? ☐ **Type** **Make**

Static Water Level

Pumping Level (below land surface)

Wellhead Completion

Pitless adapter manufacturer Model

☐ Casing Protection ☐ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Material	Amount	From	To
bentonite	0	0 ft.	ft.

Nearest Known Source of Contamination

feet Direction Type

Well disinfected upon completion? ☐ Yes ☐ No

Pump ☐ Not Installed Date Installed

Manufacturer's name

Model Number HP 0 Volt

Length of drop pipe ft Capacity g.p. Typ Submersible

Abandoned

Does property have any not in use and not sealed well(s)? ☐ Yes ☐ No

Variance

Was a variance granted from the MDH for this well? ☐ Yes ☐ No

Miscellaneous

First Bedrock Prairie Du Chien Group Aquifer Prairie Du Chien-

Last Strat Prairie Du Chien-Jordan Depth to Bedrock 215 ft

Located by Minnesota Geological Survey

Locate Method Digitization (Screen) - Map (1:24,000) (15 meters or

System UTM - NAD83, Zone 15, Meters X 426110 Y 4889664

Unique Number Verification Name on mailbox Input Date 01/01/1990

Angled Drill Hole

Well Contractor

Seppmann Well Co. 07160 SEPPMANN, C.

Licensee Business Lic. or Reg. No. Name of Driller

Minnesota Unique Well Number

624302

County Blue Earth
Quad Mankato
Quad ID 55B

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date 10/14/1999
Update Date 03/10/2014
Received Date

Well Name	Township	Range	Dir	Section	Subsection
WILMES,	108	26	W	15	DDDDCC

Elevation 1013 **Elev. Method** 7.5 minute topographic map (+/- 5 feet)

Address

Well 58770 211TH LA

Contact RR 4 BOX 303 MANKATO MN 56001

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
SOIL	0	2	BLACK	SOFT
CLAY	2	15	YELLOW	SOFT
CLAY	15	90	BLUE	SOFT
CLAY, SAND	90	195	BLUE	SOFT
SAND	195	211	BROWN	SOFT

Remarks

Well Depth	Depth Completed	Date Well Completed
211 ft.	211 ft.	05/27/1999

Drill Method Non-specified Rotary **Drill Fluid** Water

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☒ **From** **To**

Casing Type Single casing **Joint**
Drive Shoe? Yes ☐ No ☒ **Above/Below**

Casing Diameter	Weight	Hole Diameter
5 in. To 206 ft.	lbs./ft.	9 in. To 211 ft.

Open Hole From ft. To ft.

Screen? ☒ **Type** stainless **Make** JOHNSON

Diameter	Slot/Gauze	Length	Set
5 in.	18	7 ft.	206 ft. 211 ft.

Static Water Level

110 ft. land surface Measure 05/27/1999

Pumping Level (below land surface)

ft. hrs. Pumping at 50 g.p.m.

Wellhead Completion

Pitless adapter manufacturer MONITOR Model

☐ Casing Protection ☐ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Material	Amount	From	To
bentonite	8 Sacks	0 ft.	115 ft.
cuttings		115 ft.	200 ft.
pearock		200 ft.	211 ft.

Nearest Known Source of Contamination

50 feet North Direction Septic tank/drain field Type

Well disinfected upon completion? ☒ Yes ☐ No

Pump ☐ Not Installed Date Installed 06/05/1999

Manufacturer's name AERMOTOR

Model Number A12B75 HP 0.75 Volt 230

Length of drop pipe 1 ft Capacity 12 g.p. Typ Submersible

Abandoned

Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No

Variance

Was a variance granted from the MDH for this well? ☐ Yes ☒ No

Miscellaneous

First Bedrock Aquifer Quat. buried

Last Strat sand-brown Depth to Bedrock ft

Located by Minnesota Geological Survey

Locate Method Digitization (Screen) - Map (1:24,000) (15 meters or

System UTM - NAD83, Zone 15, Meters X 425634 Y 4889233

Unique Number Verification Information from Input Date 10/16/2002

Angled Drill Hole

Well Contractor

Searles Well Co. 08258 VOLK, J.

Licensee Business Lic. or Reg. No. Name of Driller

Minnesota Unique Well Number

463783

County Blue Earth
Quad Mapleton
Quad ID 34B

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date 06/17/1997
Update Date 02/14/2014
Received Date

Well Name	Township	Range	Dir	Section	Subsection
WILMES, KEN	108	26	W	14	CBCDAD

Elevation 1008 **Elev. Method** 7.5 minute topographic map (+/- 5 feet)

Address

C/W RR 3 BOX 16 MANKATO MN 56001

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
CLAY	0	96		
SAND	96	110		
CLAY	110	198		
SAND	198	234		
LIMESTONE	234	252		
SANDSTONE	252	262		

Remarks

Well Depth 262 ft. **Depth Completed** 262 ft. **Date Well Completed** 06/30/1990

Drill Method Non-specified Rotary **Drill Fluid** Bentonite

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☐ **From** **To**

Casing Type Single casing **Joint** Threaded
Drive Shoe? Yes ☒ No ☐ **Above/Below** 0 ft.

Casing Diameter **Weight**
5 in. To 241 ft. lbs./ft.

Open Hole From 241 ft. To 262 ft.

Screen? ☐ **Type** **Make**

Static Water Level
103 ft. land surface Measure 06/30/1990

Pumping Level (below land surface)

Wellhead Completion
Pitless adapter manufacturer Model
☐ Casing Protection ☐ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Material	Amount	From	To
bentonite	0	0 ft.	ft.

Nearest Known Source of Contamination
feet Direction Type
Well disinfected upon completion? ☐ Yes ☐ No

Pump ☐ Not Installed Date Installed
Manufacturer's name
Model Number HP 1 Volt 230
Length of drop pipe 144 ft Capacity 12 g.p. Typ Submersible

Abandoned
Does property have any not in use and not sealed well(s)? ☐ Yes ☐ No

Variance
Was a variance granted from the MDH for this well? ☐ Yes ☐ No

Miscellaneous
First Bedrock Prairie Du Chien Group Aquifer multiple
Last Strat Jordan Sandstone Depth to Bedrock 234 ft
Located by Minnesota Geological Survey
Locate Method Digitization (Screen) - Map (1:24,000) (15 meters or
System UTM - NAD83, Zone 15, Meters X 425903 Y 4889665
Unique Number Verification Information from Input Date 11/05/2002

Angled Drill Hole

Well Contractor
Seppmann Well Co. 07160 SEPPMANN, J.
Licensee Business Lic. or Reg. No. Name of Driller

Minnesota Unique Well Number

591707

County Blue Earth
Quad Mankato
Quad ID 55B

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date 06/17/1997
Update Date 02/14/2014
Received Date

Well Name	Township	Range	Dir	Section	Subsection
SIEBERG,	108	26	W	15	DDDDDB

Elevation 1012 **Elev. Method** 7.5 minute topographic map (+/- 5 feet)

Address

Contact RR 3 BOX 13 MANKATO MN 56001

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
SOIL	0	2	BLACK	SOFT
CLAY	2	20	YELLOW	SOFT
CLAY	20	95	BLUE	SOFT
CLAY AND SAND	95	110	BLUE	SOFT
CLAY	110	148	BLUE	SOFT
SAND	148	208	BROWN	SOFT

Remarks

Well Depth 208 ft. **Depth Completed** 208 ft. **Date Well Completed** 12/13/1996

Drill Method Non-specified Rotary **Drill Fluid** Water

Use domestic **Status** Active

Well Hydrofractured? **Yes** ☐ **No** ☐ **From** **To**

Casing Type Single casing **Joint**

Drive Shoe? **Yes** ☐ **No** ☒ **Above/Below** 0 ft.

Casing Diameter	Weight	Hole Diameter
5 in. To 203 ft.	lbs./ft.	9 in. To 208 ft.

Open Hole From ft. To ft.

Screen? ☒ **Type** stainless **Make** JOHNSON

Diameter	Slot/Gauze	Length	Set	
5 in.	18	8 ft.	203 ft.	208 ft.

Static Water Level

110 ft. land surface Measure 12/13/1996

Pumping Level (below land surface)

0 ft. hrs. Pumping at 50 g.p.m.

Wellhead Completion

Pitless adapter manufacturer MONITOR Model

☐ Casing Protection ☐ 12 in. above grade

☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Material	Amount	From	To
bentonite	7 Sacks	0 ft.	140 ft.
cuttings	0	140 ft.	200 ft.

Nearest Known Source of Contamination

54 feet Southeas Direction Septic tank/drain field Type

Well disinfected upon completion? ☐ Yes ☐ No

Pump ☐ Not Installed Date Installed 12/16/1996

Manufacturer's name AERMOTOR

Model Number A12B75 HP 0.75 Volt 230

Length of drop pipe 140 ft Capacity 12 g.p. Typ Submersible

Abandoned

Does property have any not in use and not sealed well(s)? ☐ Yes ☐ No

Variance

Was a variance granted from the MDH for this well? ☐ Yes ☐ No

Miscellaneous

First Bedrock Aquifer Quat. buried

Last Strat sand-brown Depth to Bedrock ft

Located by Minnesota Geological Survey

Locate Method Digitization (Screen) - Map (1:24,000) (15 meters or

System UTM - NAD83, Zone 15, Meters X 425673 Y 4889253

Unique Number Verification Tag on well Input Date 06/02/2000

Angled Drill Hole

Well Contractor

Searles Well Co. 08258 SCHAEFER, J.

Licensee Business Lic. or Reg. No. Name of Driller

Minnesota Unique Well Number

624302

County Blue Earth
Quad Mankato
Quad ID 55B

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date 10/14/1999
Update Date 03/10/2014
Received Date

Well Name	Township	Range	Dir	Section	Subsection
WILMES,	108	26	W	15	DDDDCC

Elevation 1013 **Elev. Method** 7.5 minute topographic map (+/- 5 feet)

Address

Well 58770 211TH LA

Contact RR 4 BOX 303 MANKATO MN 56001

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
SOIL	0	2	BLACK	SOFT
CLAY	2	15	YELLOW	SOFT
CLAY	15	90	BLUE	SOFT
CLAY, SAND	90	195	BLUE	SOFT
SAND	195	211	BROWN	SOFT

Remarks

Well Depth	Depth Completed	Date Well Completed
211 ft.	211 ft.	05/27/1999

Drill Method Non-specified Rotary **Drill Fluid** Water

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☒ **From** **To**

Casing Type Single casing **Joint**
Drive Shoe? Yes ☐ No ☒ **Above/Below**

Casing Diameter	Weight	Hole Diameter
5 in. To 206 ft.	lbs./ft.	9 in. To 211 ft.

Open Hole From ft. To ft.

Screen? ☒ **Type** stainless **Make** JOHNSON

Diameter	Slot/Gauze	Length	Set
5 in.	18	7 ft.	206 ft. 211 ft.

Static Water Level

110 ft. land surface Measure 05/27/1999

Pumping Level (below land surface)

ft. hrs. Pumping at 50 g.p.m.

Wellhead Completion

Pitless adapter manufacturer MONITOR Model

☐ Casing Protection ☐ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Material	Amount	From	To
bentonite	8 Sacks	0 ft.	115 ft.
cuttings		115 ft.	200 ft.
pearock		200 ft.	211 ft.

Nearest Known Source of Contamination

50 feet North Direction Septic tank/drain field Type

Well disinfected upon completion? ☒ Yes ☐ No

Pump ☐ Not Installed Date Installed 06/05/1999

Manufacturer's name AERMOTOR

Model Number A12B75 HP 0.75 Volt 230

Length of drop pipe 1 ft Capacity 12 g.p. Typ Submersible

Abandoned

Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No

Variance

Was a variance granted from the MDH for this well? ☐ Yes ☒ No

Miscellaneous

First Bedrock Aquifer Quat. buried

Last Strat sand-brown Depth to Bedrock ft

Located by Minnesota Geological Survey

Locate Method Digitization (Screen) - Map (1:24,000) (15 meters or

System UTM - NAD83, Zone 15, Meters X 425634 Y 4889233

Unique Number Verification Information from Input Date 10/16/2002

Angled Drill Hole

Well Contractor

Searles Well Co. 08258 VOLK, J.

Licensee Business Lic. or Reg. No. Name of Driller

Minnesota Unique Well Number

682283

County Blue Earth
Quad Mankato
Quad ID 55B

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date 05/01/2003
Update Date 03/10/2014
Received Date 04/02/2003

Well Name	Township	Range	Dir	Section	Subsection
MARCOTTE,	108	26	W	15	DBCDBB

Elevation 1012 **Elev. Method** 7.5 minute topographic map (+/- 5 feet)

Address

C/W 21271 386TH AV MANKATO MN 56001

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
SOIL	0	2	BLACK	SOFT
CLAY	2	19	YELLOW	SOFT
CLAY FIRM	19	86	BLUE	
SAND	86	94	BROWN	SOFT
CLAY FIRM	94	123	BLUE	
CLAY & SAND FIRM	123	176	BRN/BLU	
SAND	176	178	BROWN	SOFT
SANDY CLAY FIRM	178	202	BLUE	
SAND	202	213	GRAY	SOFT

Remarks

BE-03-05 - ST PETER WELL.

Well Depth 213 ft. **Depth Completed** 213 ft. **Date Well Completed** 03/24/2003

Drill Method Non-specified Rotary **Drill Fluid** Water

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☒ **From** **To**

Casing Type Single casing **Joint**

Drive Shoe? Yes ☐ No ☒ **Above/Below**

Casing Diameter	Weight	Hole Diameter
5 in. To 208 ft.	lbs./ft.	8.7 in. To 213 ft.

Open Hole From ft. To ft.

Screen? ☒ **Type** stainless **Make** JOHNSON

Diameter	Slot/Gauze	Length	Set	
5 in.	12	5 ft.	205 ft.	213 ft.

Static Water Level

110 ft. land surface Measure 03/24/2003

Pumping Level (below land surface)

ft. hrs. Pumping at 60 g.p.m.

Wellhead Completion

Pitless adapter manufacturer MAASS Model

☐ Casing Protection ☒ 12 in. above grade

☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Material	Amount	From	To
high solids bentonite	6 Sacks	0 ft.	50 ft.

Nearest Known Source of Contamination

22 feet Southwes Direction Other Type

Well disinfected upon completion? ☒ Yes ☐ No

Pump ☐ Not Installed Date Installed 03/25/2003

Manufacturer's name AEROMOTOR

Model Number S12-75 HP 0.75 Volt 230

Length of drop pipe 140 ft Capacity 12 g.p. Typ Submersible

Abandoned

Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No

Variance

Was a variance granted from the MDH for this well? ☐ Yes ☒ No

Miscellaneous

First Bedrock Aquifer Quat. buried

Last Strat sand-gray Depth to Bedrock ft

Located by Minnesota Geological Survey

Locate Method Digitization (Screen) - Map (1:24,000) (15 meters or

System UTM - NAD83, Zone 15, Meters X 425036 Y 4889721

Unique Number Verification Address verification Input Date 05/02/2007

Angled Drill Hole

Well Contractor

Searles Well Co. 08258 SCHAEFER, J.

Licensee Business Lic. or Reg. No. Name of Driller

Minnesota Unique Well Number

752412

County Blue Earth
Quad Mankato
Quad ID 55B

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date 05/09/2008
Update Date 03/03/2009
Received Date 09/28/2007

Well Name	Township	Range	Dir	Section	Subsection
DEPUYDT,	108	26	W	14	CCCACA

Elevation 1012 **Elev. Method** CALC FROM 2-FOOT COUNTY DEM

Address

C/W 58819 211TH LA MANKATO MN 56001

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
SOIL	0	2	BLACK	SOFT
CLAY	2	14	GRAY	SOFT
CLAY	14	22	BLUE	SOFT
SAND	22	24	GRAY	SOFT
CLAY	24	81	BLUE	SOFT
SAND & CLAY	81	105	BLUE	SOFT
GRAVEL	105	110	GRAY	SOFT
ROCKY CLAY	110	121	BLUE	HARD
STICKY CLAY	121	160	BLUE	HARD
CLAY & SAND	160	174	BLUE	HARD
STICKY CLAY	174	195	BLUE	HARD
SAND	195	208	GRAY	SOFT

Remarks

Well Depth 208 ft. **Depth Completed** 208 ft. **Date Well Completed** 09/28/2007

Drill Method Non-specified Rotary **Drill Fluid** Water

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☒ **From** **To**

Casing Type Single casing **Joint**
Drive Shoe? Yes ☐ No ☒ **Above/Below**

Casing Diameter	Weight	Hole Diameter
5 in. To 203 ft.	lbs./ft.	8.7 in. To 208 ft.

Open Hole From ft. To ft.

Screen? ☒ **Type** stainless **Make** JOHNSON

Diameter	Slot/Gauze	Length	Set	
5 in.	15	5 ft.	203 ft.	208 ft.

Static Water Level

109 ft. land surface Measure 09/28/2007

Pumping Level (below land surface)

ft. hrs. Pumping at 40 g.p.m.

Wellhead Completion

Pitless adapter manufacturer MAAS Model 4J-1.25
☐ Casing Protection ☐ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Material	Amount	From	To
bentonite	6 Sacks	ft.	65 ft.

Nearest Known Source of Contamination

50 feet South Direction Sewer Type
Well disinfected upon completion? ☒ Yes ☐ No

Pump ☐ Not Installed Date Installed 10/01/2007
Manufacturer's name SCHAEFER
Model Number LEGACY HP 0.75 Volt 230
Length of drop pipe 140 ft Capacity 10 g.p. Typ Submersible

Abandoned

Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No

Variance

Was a variance granted from the MDH for this well? ☐ Yes ☒ No

Miscellaneous

First Bedrock Aquifer Quat. buried
Last Strat sand-gray Depth to Bedrock ft
Located by Blue Earth Cty.
Locate Method Digitization (Screen) - Map (1:12,000) (>15 meters)
System UTM - NAD83, Zone 15, Meters X 425875 Y 4889364
Unique Number Verification Site Plan Input Date 02/11/2009

Angled Drill Hole

Well Contractor

Searles Well Drilling, Inc. 1493 SCHAEFER, J
Licensee Business Lic. or Reg. No. Name of Driller

Minnesota Unique Well Number

798807

County Blue Earth
Quad Mankato
Quad ID 55B

MINNESOTA DEPARTMENT OF HEALTH

WELL AND BORING REPORT

Minnesota Statutes Chapter 1031

Entry Date 03/23/2016
Update Date 12/15/2021
Received Date 03/14/2016

Well Name	Township	Range	Dir	Section	Subsection
SEIFERT, TIM	108	26	W	14	CDBBAB

Elevation 1005 **Elev. Method** LiDAR 1m DEM (MNDNR)

Address

C/W 58989 211TH LA MANKATO MN 56001

Stratigraphy Information

Geological Material	From	To (ft.)	Color	Hardness
SOIL	0	2	BLACK	SOFT
CLAY	2	21	GREEN	SOFT
CLAY	21	29	BLUE	SOFT
SANDY CLAY	29	78	BLUE	SOFT
CLAY & SAND	78	96	BLUE	SOFT
COARSE SAND	96	104	GRAY	SOFT
FIRM CLAY	104	173	BLUE	
STICKY CLAY	173	201	BLUE	
SANDY CLAY	201	208	BLUE	SOFT
SANDY & ROCKS	208	213	GRAY	SOFT
FIRM BROKEN ROCK	213	214	YELLOW	

Remarks

Well Depth 214 ft. **Depth Completed** 214 ft. **Date Well Completed** 11/25/2013

Drill Method Non-specified Rotary **Drill Fluid** Water

Use domestic **Status** Active

Well Hydrofractured? Yes ☐ No ☒ **From** **To**

Casing Type Step down **Joint**
Drive Shoe? Yes ☐ No ☐ **Above/Below**

Casing Diameter	Weight	Hole Diameter
5 in. To 209 ft.	200 lbs./ft.	9 in. To 214 ft.

Open Hole From ft. To ft.

Screen? ☒ **Type** stainless **Make** JOHNSON

Diameter	Slot/Gauze	Length	Set
5 in.	12	5 ft.	209 ft. 214 ft.

Static Water Level

99.8 ft. land surface Measure 11/25/2013

Pumping Level (below land surface)

ft. hrs. Pumping at 35 g.p.m.

Wellhead Completion

Pitless adapter manufacturer MONITOR Model 5"X1"
☐ Casing Protection ☐ 12 in. above grade
☐ At-grade (Environmental Wells and Borings ONLY)

Grouting Information Well Grouted? ☒ Yes ☐ No ☐ Not Specified

Material	Amount	From	To
bentonite	9 Sacks	ft.	85 ft.

Nearest Known Source of Contamination

75 feet Southeas Direction Septic tank/drain field Type
Well disinfected upon completion? ☐ Yes ☐ No

Pump ☐ Not Installed Date Installed 11/27/2013
Manufacturer's name SCHAEFER
Model Number PLASTIC HP 0.75 Volt 230
Length of drop pipe 1.2 ft Capacity 10 g.p. Typ Submersible

Abandoned

Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No

Variance

Was a variance granted from the MDH for this well? ☐ Yes ☒ No

Miscellaneous

First Bedrock Aquifer
Last Strat Depth to Bedrock ft
Located by Minnesota Geological Survey
Locate Method GPS SA Off (averaged) (15 meters)
System UTM - NAD83, Zone 15, Meters X 426207 Y 4889613
Unique Number Verification Info/GPS from data Input Date 12/15/2021

Angled Drill Hole

Well Contractor

Searles Well Drilling, Inc. 1493 SCHAEFER, J
Licensee Business Lic. or Reg. No. Name of Driller

Appendix C: Agency Correspondence

MnDNR Natural Heritage Determination Letter

Formal Natural Heritage Review - Cover Page

See next page for results of review. A draft watermark means the project details have not been finalized and the results are not official.

Project Name: Mesenbrink Residential Development

Project Proposer: Mesenbrink Construction & Engineering, Inc.

Project Type: Development, Mixed Use

Project Type Activities: Tree Removal;Wetland impacts (e.g., discharge, runoff, sedimentation, fill, excavation)

TRS: T108 R26 S15, T108 R26 S22

County(s): Blue Earth

DNR Admin Region(s): South

Reason Requested: State EAW

Project Description: Mesenbrink Construction & Engineering, Inc. is proposing a residential development project with a small commercial component along 586th Ave in Mankato ...

Existing Land Uses: Current landuse is mostly agricultural with the northern portion of the property covered in undeveloped green space.

Landcover / Habitat Impacted: Agricultural land will be developed to be suitable for building the abovementioned residential structures. Some tree removal around existing roadway boulevards will likely be removed.

Waterbodies Affected: A small wetland that intersects with the property is not anticipated to be directly impacted by the proposed work.

Groundwater Resources Affected: N/A

Previous Natural Heritage Review: No

Previous Habitat Assessments / Surveys: No

SUMMARY OF AUTOMATED RESULTS

Category	Results	Response By Category
Project Details	No Comments	No Further Review Required
Ecologically Significant Area	No Comments	No Further Review Required
State-Listed Endangered or Threatened Species	No Comments	No Further Review Required
State-Listed Species of Special Concern	No Comments	No Further Review Required
Federally Listed Species	No Records	Visit IPaC For Federal Review

DEPARTMENT OF NATURAL RESOURCES

Minnesota Department of Natural Resources
Division of Ecological & Water Resources
500 Lafayette Road, Box 25
St. Paul, MN 55155-4025

September 15, 2022

Project ID: MCE #2022-00619

Matthew Sitek
Bolton & Menk, Inc.
12224 Nicollet Avenue S
Burnsville, MN 55337-1649

RE: Automated Natural Heritage Review of the proposed Mesenbrink Residential Development
See Cover Page for location and project details.

Dear Matthew Sitek,

As requested, the above project has been reviewed for potential effects to rare features. Given the project details provided on the cover page, I do not believe the proposed project will negatively affect any known occurrences of rare features. To ensure compliance with federal law, conduct a federal regulatory review using the U.S. Fish and Wildlife Service's (USFWS) online Information for Planning and Consultation (IPaC) tool.

Project Type and/or Project Type Activity Comments

- The Natural Heritage Information System (NHIS) tracks bat roost trees and hibernacula plus some acoustic data, but this information is not exhaustive. Even if there are no bat records listed below, all seven of Minnesota's bats, including the federally threatened northern long-eared bat (*Myotis septentrionalis*), can be found throughout Minnesota. Tree removal can negatively impact bats by destroying roosting habitat, especially during the pup rearing season when females are forming maternity roosting colonies and the pups cannot yet fly. To minimize these impacts, the DNR recommends that tree removal be avoided during the months of June and July.

The Natural Heritage Information System (NHIS), a collection of databases that contains information about Minnesota's rare natural features, is maintained by the Division of Ecological and Water Resources, Department of Natural Resources. The NHIS is continually updated as new information becomes available, and is the most complete source of data on Minnesota's rare or otherwise significant species, native plant communities, and other natural features. However, the NHIS is not an exhaustive inventory and thus does not represent all of the occurrences of rare features within the state. Therefore, ecologically significant features for which we have no records may exist within the project area. If additional information becomes available regarding rare features in the vicinity of the project, further review may be necessary.

For environmental review purposes, the results of this Natural Heritage Review are valid for one year; the results are only valid for the project location and the project description provided on the cover page. If project details change or construction has not occurred within one year, please resubmit the project for review.

The Natural Heritage Review does not constitute project approval by the Department of Natural Resources. Instead, it identifies issues regarding known occurrences of rare features and potential effects to these rare features. For information on the environmental review process or other natural resource concerns, you may contact your DNR Regional Environmental Assessment Ecologist.

Thank you for consulting us on this matter, and for your interest in preserving Minnesota's rare natural resources.

Sincerely,

Samantha Bump
Natural Heritage Review Specialist
Samantha.Bump@state.mn.us

Links: USFWS Information for Planning and Consultation (IPaC) tool
Information for Planning and Consultation (IPaC) tool
DNR Regional Environmental Assessment Ecologist Contact Info
https://www.dnr.state.mn.us/eco/ereview/erp_regioncontacts.html

Mesenbrink Residential Development

Aerial Imagery With Locator Map

N
W E
S

0 0.130.25 0.5 0.75 1 Miles

Project Boundary

Project Type: Development, Mixed Use

Project Size (acres): 102.74

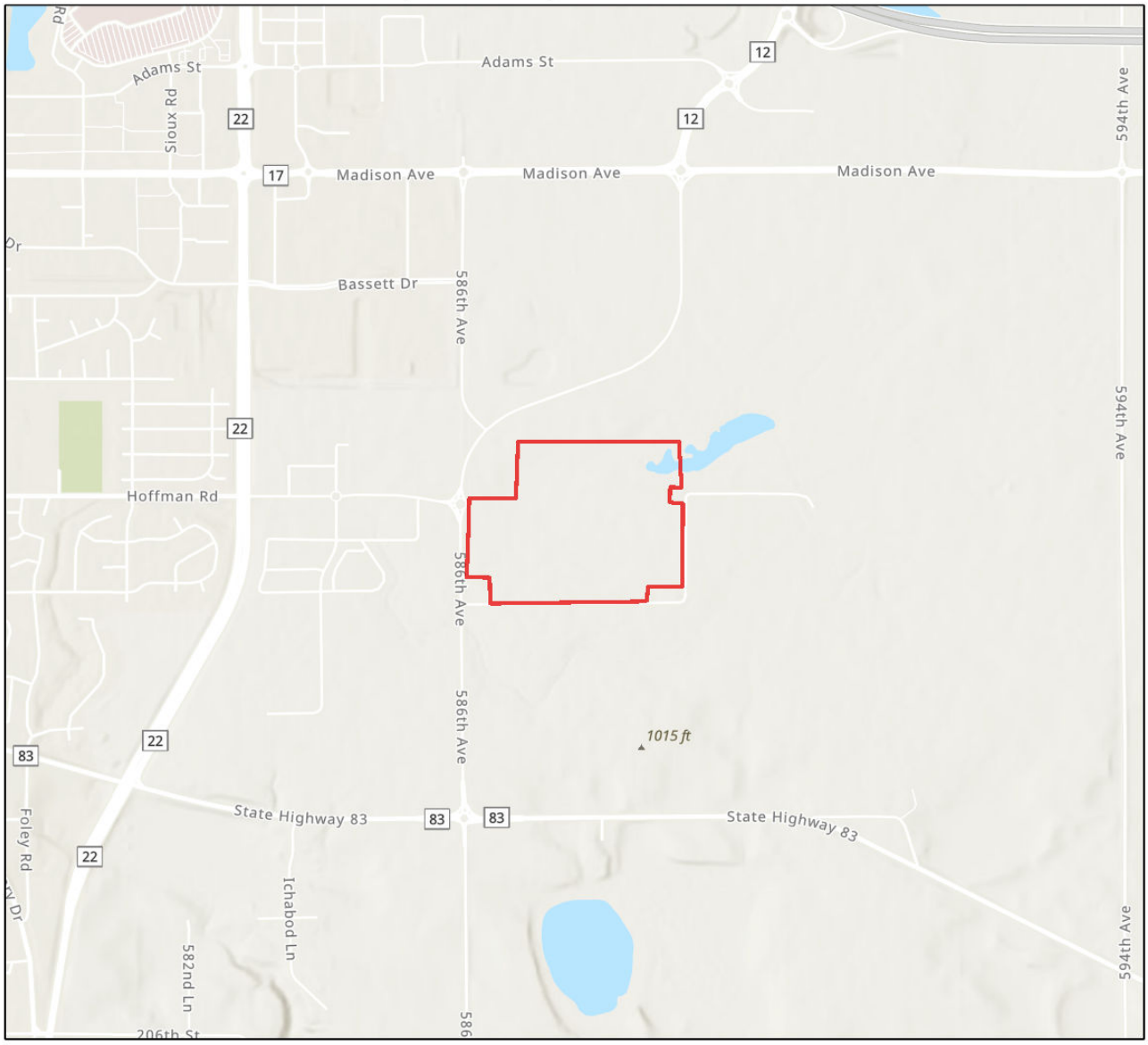
County(s): Blue Earth

TRS: T108 R26 S15, T108 R26 S22

Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA
Esri, HERE, Garmin, FAO, NOAA, USGS, EPA

Mesenbrink Residential Development

USA Topo Basemap With Locator Map



Project Type: Development, Mixed Use

Project Size (acres): 102.74

County(s): Blue Earth

TRS: T108 R26 S15, T108 R26 S22

Esri, NASA, NGA, USGS, FEMA
Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA

MN SHPO Determination Letter and Request Form

DEPARTMENT OF ADMINISTRATION
STATE HISTORIC PRESERVATION OFFICE

October 12, 2022

Matthew Sitek
Bolton & Menk Inc.
12224 Nicollet Ave
Burnsville, MN 55407

RE: Mesenbrink Residential Development
T108 R26 S15 SE, Mankato, Blue Earth County
SHPO Number: 2022-2791

Dear Matthew Sitek:

Thank you for consulting with our office during the preparation of an Environmental Assessment Worksheet for the above-referenced project.

Based on our review of the project information, we conclude that there are no properties listed in the National or State Registers of Historic Places and no known or suspected archaeological properties in the area that will be affected by this project.

Please note that this comment letter does not address the requirements of Section 106 of the National Historic Preservation Act of 1966 and 36 CFR § 800. If this project is considered for federal financial assistance, or requires a federal permit or license, then review and consultation with our office will need to be initiated by the lead federal agency. Be advised that comments and recommendations provided by our office for this state-level review may differ from findings and determinations made by the federal agency as part of review and consultation under Section 106.

Please contact Kelly Gragg-Johnson, Environmental Review Program Specialist, at 651-201-3285 or kelly.graggjohnson@state.mn.us if you have any questions regarding our review of this project.

Sincerely,

Sarah J. Beimers
Environmental Review Program Manager

USFWS IPaC Species List

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Minnesota-Wisconsin Ecological Services Field Office
4101 American Blvd E
Bloomington, MN 55425-1665
Phone: (952) 252-0092 Fax: (952) 646-2873

In Reply Refer To: September 15, 2022
Project Code: 2022-0085937
Project Name: Mesenbrink Residential Development

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

This response has been generated by the Information, Planning, and Conservation (IPaC) system to provide information on natural resources that could be affected by your project. The U.S. Fish and Wildlife Service (Service) provides this response under the authority of the Endangered Species Act of 1973 (16 U.S.C. 1531-1543), the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d), the Migratory Bird Treaty Act (16 U.S.C. 703-712), and the Fish and Wildlife Coordination Act (16 U.S.C. 661 *et seq.*).

Threatened and Endangered Species
The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and may be affected by your proposed project. The species list fulfills the requirement for obtaining a Technical Assistance Letter from the U.S. Fish and Wildlife Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. The Service recommends that verification be completed by visiting the ECOS IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS IPaC system by completing the same process used to receive the enclosed list.

Consultation Technical Assistance
Please refer to refer to our Section 7 website for guidance and technical assistance, including step-by-step instructions for making effects determinations for each species that might be present and for specific guidance on the following types of projects: projects in developed areas, HUD, CDBG, EDA, pipelines, buried utilities, telecommunications, and requests for a Conditional Letter of Map Revision (CLOMR) from FEMA.

Using the IPaC Official Species List to Make No Effect and May Affect Determinations for Listed Species

1. If IPaC returns a result of "There are no listed species found within the vicinity of the project," then project proponents can conclude the proposed activities will have **no effect** on any federally listed species under Service jurisdiction. Concurrence from the Service is not required for **no effect** determinations. No further consultation or coordination is required. Attach this letter to the dated IPaC species list report for your records.
2. If IPaC returns one or more federally listed, proposed, or candidate species as potentially present in the action area of the proposed project – other than bats (see below) – then project proponents must determine if proposed activities will have **no effect** on or **may affect** those species. For assistance in determining if suitable habitat for listed, candidate, or proposed species occurs within your project area or if species may be affected by project activities, you can obtain Life History Information for Listed and Candidate Species on our office website. If no impacts will occur to a species on the IPaC species list (e.g., there is no habitat present in the project area), the appropriate determination is **no effect**. No further consultation or coordination is required. Attach this letter to the dated IPaC species list report for your records.
3. Should you determine that project activities **may affect** any federally listed, please contact our office for further coordination. Letters with requests for consultation or correspondence about your project should include the Consultation Tracking Number in the header. Electronic submission is preferred.

Northern Long-Eared Bats
Northern long-eared bats occur throughout Minnesota and Wisconsin and the information below may help in determining if your project may affect these species.

This species hibernates in caves or mines only during the winter. In Minnesota and Wisconsin, the hibernation season is considered to be November 1 to March 31. During the active season (April 1 to October 31) they roost in forest and woodland habitats. Suitable summer habitat for northern long-eared bats consists of a wide variety of forested/wooded habitats where they roost, forage, and travel and may also include some adjacent and interspersed non-forested habitats such as emergent wetlands and adjacent edges of agricultural fields, old fields and pastures. This includes forests and woodlots containing potential roosts (i.e., live trees and/or snags ≥3 inches dbh for northern long-eared bat that have exfoliating bark, cracks, crevices, and/or hollows), as well as linear features such as fencerows, riparian forests, and other wooded corridors. These wooded areas may be dense or loose aggregates of trees with variable amounts of canopy closure. Individual trees may be considered suitable habitat when they exhibit the characteristics of a potential roost tree and are located within 1,000 feet (305 meters) of forested/wooded habitat. Northern long-eared bats have also been observed roosting in human-made structures, such as buildings, barns, bridges, and bat houses; therefore, these structures should also be considered potential summer habitat and evaluated for use by bats. If your project will impact caves or mines or will involve clearing forest or woodland habitat containing suitable roosting habitat, northern long-eared bats could be affected.

Examples of unsuitable habitat include:

- Individual trees that are greater than 1,000 feet from forested or wooded areas,
- Trees found in highly developed urban areas (e.g., street trees, downtown areas),

- A pure stand of less than 3-inch dbh trees that are not mixed with larger trees, and
- A stand of eastern red cedar shrubby vegetation with no potential roost trees.

If IPaC returns a result that northern long-eared bats are potentially present in the action area of the proposed project, project proponents can conclude the proposed activities **may affect** this species **IF** one or more of the following activities are proposed:

- Clearing or disturbing suitable roosting habitat, as defined above, at any time of year,
- Any activity in or near the entrance to a cave or mine,
- Mining, deep excavation, or underground work within 0.25 miles of a cave or mine,
- Construction of one or more wind turbines, or
- Demolition or reconstruction of human-made structures that are known to be used by bats based on observations of roosting bats, bats emerging at dusk, or guano deposits or stains.

If none of the above activities are proposed, project proponents can conclude the proposed activities will have **no effect** on the northern long-eared bat. Concurrence from the Service is not required for **No Effect** determinations. No further consultation or coordination is required. Attach this letter to the dated IPaC species list report for your records.

If any of the above activities are proposed, please use the northern long-eared bat determination key in IPaC. This tool streamlines consultation under the 2016 rangewide programmatic biological opinion for the 4(d) rule. The key helps to determine if prohibited take might occur and, if not, will generate an automated verification letter. No further review by us is necessary.

Please note that on March 23, 2022, the Service published a proposal to reclassify the northern long-eared bat as endangered under the Endangered Species Act. The U.S. District Court for the District of Columbia has ordered the Service to complete a new final listing determination for the bat by November 2022 (Case 1:15-cv-00477, March 1, 2021). The bat, currently listed as threatened, faces extinction due to the range-wide impacts of white-nose syndrome (WNS), a deadly fungal disease affecting cave-dwelling bats across the continent. The proposed reclassification, if finalized, would remove the current 4(d) rule for the NLEB, as these rules may be applied only to threatened species. Depending on the type of effects a project has on NLEB, the change in the species' status may trigger the need to re-initiate consultation for any actions that are not completed and for which the Federal action agency retains discretion once the new listing determination becomes effective (anticipated to occur by December 30, 2022). If your project may result in incidental take of northern long-eared bats after the new listing goes into effect this will first need to addressed in an updated consultation that includes an Incidental Take Statement. If your project may require re-initiation of consultation, please contact our office for additional guidance.

Whooping Crane

Whooping crane is designated as a non-essential experimental population in Wisconsin and consultation under Section 7(a)(2) of the Endangered Species Act is only required if project activities will occur within a National Wildlife Refuge or National Park. If project activities are proposed on lands outside of a National Wildlife Refuge or National Park, then you are not required to consult. For additional information on this designation and consultation requirements, please review "Establishment of a Nonessential Experimental Population of

Whooping Cranes in the Eastern United States."

Other Trust Resources and Activities
Bald and Golden Eagles - Although the bald eagle has been removed from the endangered species list, this species and the golden eagle are protected by the Bald and Golden Eagle Act and the Migratory Bird Treaty Act. Should bald or golden eagles occur within or near the project area please contact our office for further coordination. For communication and wind energy projects, please refer to additional guidelines below.

Migratory Birds - The Migratory Bird Treaty Act (MBTA) prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when specifically authorized by the Service. The Service has the responsibility under the MBTA to proactively prevent the mortality of migratory birds whenever possible and we encourage implementation of recommendations that minimize potential impacts to migratory birds. Such measures include clearing forested habitat outside the nesting season (generally March 1 to August 31) or conducting nest surveys prior to clearing to avoid injury to eggs or nestlings.

Communication Towers - Construction of new communications towers (including radio, television, cellular, and microwave) creates a potentially significant impact on migratory birds, especially some 350 species of night-migrating birds. However, the Service has developed voluntary guidelines for minimizing impacts.

Transmission Lines - Migratory birds, especially large species with long wingspans, heavy bodies, and poor maneuverability can also collide with power lines. In addition, mortality can occur when birds, particularly hawks, eagles, kites, falcons, and owls, attempt to perch on uninsulated or unguarded power poles. To minimize these risks, please refer to guidelines developed by the Avian Power Line Interaction Committee and the Service. Implementation of these measures is especially important along sections of lines adjacent to wetlands or other areas that support large numbers of raptors and migratory birds.

Wind Energy - To minimize impacts to migratory birds and bats, wind energy projects should follow the Service's Wind Energy Guidelines. In addition, please refer to the Service's Eagle Conservation Plan Guidance, which provides guidance for conserving bald and golden eagles in the course of siting, constructing, and operating wind energy facilities.

State Department of Natural Resources Coordination
While it is not required for your Federal section 7 consultation, please note that additional state endangered or threatened species may also have the potential to be impacted. Please contact the Minnesota or Wisconsin Department of Natural Resources for information on state listed species that may be present in your proposed project area.

Minnesota
Minnesota Department of Natural Resources - Endangered Resources Review Homepage
Email: Review.NHIS@state.mn.us

Wisconsin
Wisconsin Department of Natural Resources - Endangered Resources Review Homepage
Email: DNRERReview@wi.gov

We appreciate your concern for threatened and endangered species. Please feel free to contact our office with questions or for additional information.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Migratory Birds
- Wetlands

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Minnesota-Wisconsin Ecological Services Field Office
4101 American Blvd E
Bloomington, MN 55425-1665
(952) 252-0092

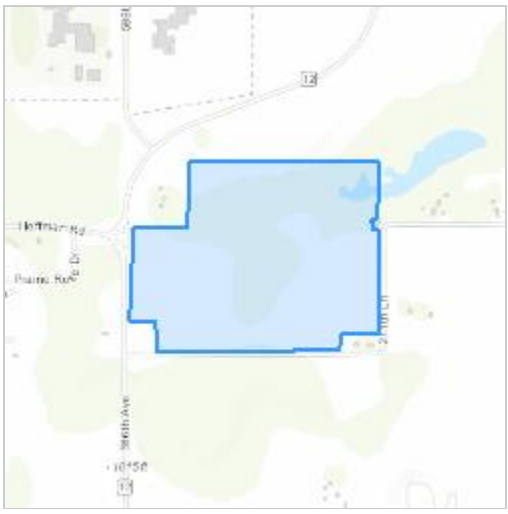
Project Summary

Project Code: 2022-0085937
Project Name: Mesenbrink Residential Development
Project Type: Residential Construction
Project Description: Mesenbrink Construction & Engineering, Inc. is proposing a residential development project with a small commercial component along 586th Ave in Mankato on an approximate 105-acre property. Of the 105 acres, only about 80 acres is buildable. The other 25 acres include wetland areas which will not be impacted directly. Parcel numbers for the study area include: R430915400009 and R430915400003. The current concept plan is attached to this proposal for reference. The EAW study area is proposed to include:

- 113 Single Family Residential Units
- 30 Townhomes (6 Unit Buildings)
- 530 Apartment Units (includes standalone buildings and units over the retail center)
- 21,000 sq ft of Retail Center
- 5,400 sq ft Gas Station/Commercial Node
- Internal Roadway and Parking
- Stormwater Ponds
- Open Green Space

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@44.1551489,-93.9338733924331,14z



Counties: Blue Earth County, Minnesota

Endangered Species Act Species

There is a total of 2 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Insects

NAME	STATUS
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

USFWS National Wildlife Refuge Lands And Fish Hatcheries

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

Migratory Birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

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1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Dec 1 to Aug 31

Probability Of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the

FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

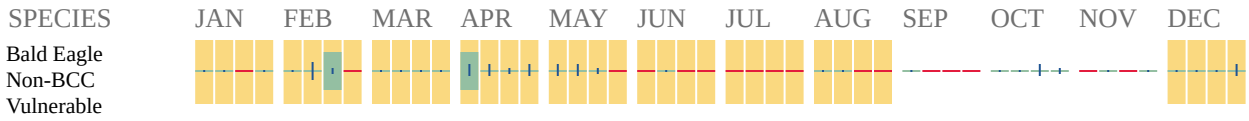
1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season (■)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Additional information can be found using the following links:

- Birds of Conservation Concern https://www.fws.gov/program/migratory-birds/species
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf

Migratory Birds FAQ

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?
To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the RAIL Tool and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?
Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects
For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?
If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report
The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Wetlands

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

WETLAND INFORMATION WAS NOT AVAILABLE WHEN THIS SPECIES LIST WAS GENERATED. PLEASE VISIT HTTPS://WWW.FWS.GOV/WETLANDS/DATA/MAPPER.HTML OR CONTACT THE FIELD OFFICE FOR FURTHER INFORMATION.

IPaC User Contact Information

Agency: Bolton & Menk, Inc.
Name: Matthew Sitek
Address: 12224 Nicollet Ave
City: Burnsville
State: MN
Zip: 55337
Email matthew.sitek@bolton-menk.com
Phone: 6124689241

APPENDIX D – NEGATIVE DECLARATION ON THE NEED FOR AN EIS

RESOLUTION MAKING A NEGATIVE DECLARATION ON THE NEED FOR AN ENVIRONMENTAL IMPACT STATEMENT FOR THE PROPOSED 105-ACRE PROJECT FOR A MIXED-USE DEVELOPMENT INCLUDING HOUSING AND COMMERCIAL DEVELOPMENT

WHEREAS, MN Rule 4410 establishes the requirements for the preparation of an Environmental Assessment Worksheet (EAW); and

WHEREAS, the City of Mankato is the Responsible Governmental Unit (RGU) for the preparation of an EAW; and

WHEREAS, the City of Mankato received a request to review an Environmental Assessment Worksheet to review a 105-acre project for a mixed-use development including housing and commercial development (Project) by request of Mesenbrink Construction; and

WHEREAS, an EAW is a document which is designed to set out the basic facts necessary to determine whether an Environmental Impact Statement (EIS) is required for a proposed action. The purpose of the EAW process is to disclose information about potential environmental impacts of a project. The worksheet contains a series of questions to provide background on the project, describe the project's environmental setting, identify the potential for environmental harm, and describe plans to reduce the harm; and

WHEREAS, an Environmental Assessment Worksheet has been prepared by Bolton and Menk, on behalf of Mesenbrink Construction, and the City of Mankato has reviewed the documents according to MN Rules 4410 and Environmental Quality Board guidance documents; and

WHEREAS, no governmental approvals may be given to the proposed project, nor construction initiated, until the need for an Environmental Impact Statement (EIS) has been determined. Construction includes any activities which directly affect the environment, including the preparation of land. If the decision is to prepare an EIS, approval must be withheld until an EIS is completed; and

WHEREAS, comments have been received during a 30-day public comment period from February 7, 2023, through March 9, 2023, following publication in the Environmental Quality Board Monitor, and local public notice. Comments were received from six (6) individuals and five (5) state or local agencies. Responses have been prepared by Bolton and Menk, on behalf of Mesenbrink Construction, in the Findings of Fact and Conclusion document which addresses the comments received.

NOW, THEREFORE, BE IT RESOLVED that based on information presented in the EAW, the comments/responses and supporting information, and given all the aforementioned findings, the project does not have the potential for significant environmental effects. All environmental issues raised during the EAW process of which the applicant has control over have been addressed or will be addressed during the permit process. Therefore, the City of Mankato, as the Responsible Government Unit, determines that an Environmental Impact Statement is not necessary for the proposed project.

This resolution shall become effective immediately upon passage.

Dated this 8th day of May, 2023.

Najwa Massad
Najwa Massad
Mayor

ATTEST: Renae Kopischke
Renae Kopischke, MMC
City Clerk